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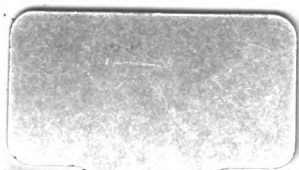
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MASSACHUSETTS
HIGHWAY COMMISSION

YEAR ENDING NOVEMBER 30

1910



STATE HIGHWAY IN WAREHAM.



Road constructed by combining Oil and Sand.

.EIGHTEENTH ANNUAL REPORT
OF THE
MASSACHUSETTS
HIGHWAY COMMISSION,

FOR THE FISCAL YEAR ENDING NOVEMBER 30, 1910.

PART I. — STATE HIGHWAYS AND MOTOR VEHICLES.
PART II. — SUPERVISION OF TELEPHONE AND TELEGRAPH
COMPANIES.

JANUARY, 1911.



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The Commonwealth of Massachusetts.

To the Honorable Senate and House of Representatives of the Commonwealth of Massachusetts in General Court assembled.

The undersigned commissioners, appointed under the provisions of chapter 476 of the Acts of 1893 and of chapter 474 of the Acts of 1900, herewith submit, in Part I., their eighteenth annual report, in accordance with the provisions of chapter 47 of the Revised Laws, and, in Part II., their fifth annual report relative to their supervision of telegraph and telephone companies, under the provisions of chapter 433 of the Acts of 1906; both reports being for the fiscal year ending Nov. 30, 1910.

HAROLD PARKER.

WM. D. SOHIER.

F. D. KEMP.

BOSTON, MASS., Jan. 4, 1911.

ANNUAL REPORT OF THE MASSACHUSETTS HIGHWAY COMMISSION.

PART I.

RELATING TO STATE HIGHWAYS AND MOTOR VEHICLES.

The past year has been an extremely busy one, not only for the commission, but throughout all its various departments. For weeks at a time the commissioners have been so much occupied that it has been found impossible to arrange to comply with all requests for conferences made by town officials who wished to discuss road improvements in their communities. The commission's engineers have been sent, however, whenever their services were desired and it was possible to send them.

Automobile hearings and the reports and investigations of automobile accidents are constantly taking more and more of the time and attention of the commission. During the year it was necessary to hold 197 hearings on different cases concerning automobile accidents and complaints. It was also necessary to read and pass upon 429 reports of investigations and automobile accidents, to ascertain who was to blame for the same. Work of this character has almost entirely come as the result of the constantly increasing number of automobiles during the past three years. It is, the commission believes, an extremely valuable part of its work.

The study of telephone rates has occupied a great deal of time. The commission held several hearings on the schedule of rates recommended by its engineers. There have been many

conferences with the parties interested, including representatives of the municipalities and organizations. During the year 10 public hearings have been held on telephone matters and 15 hearings on matters relating to street railway locations, etc.

Besides the regular hearings held in each of the fourteen counties to enable the city and town officials to present their particular needs, the commission has held 52 formal hearings at its offices in Boston with town and city authorities and representatives. In several instances quite a number of hearings were given concerning a road in a single town.

The commission held hearings in regard to requests for aid under the "small town" act or for the building of State highways in the following cities and towns: Abington, Amherst, Attleborough, Barnstable, Bedford, Bridgewater, Bourne, Brookfield, Carlisle, Chelmsford, Charlton, Cheshire, Chicopee, Cambridge, Dracut, Duxbury, Falmouth, Framingham, Georgetown, Greenfield, Hudson, Lakeville, Maynard, Milford, Middleborough, Millbury, Marshfield, Marblehead, Northbridge, Norfolk, North Brookfield, New Bedford, Pembroke, Phillipston, Saugus, Lynnfield, Danvers, Peabody, Topsfield, Newbury, Rowley, Revere, Raynham, Rockport, Rehoboth, Scituate, Swansea, Salisbury, Seekonk, Southborough, Southbridge, Taunton, Townsend, Wilmington, Ware, Whitman, Wenham, Weymouth and Yarmouth. In many cases representatives of the adjoining towns were present, as well; for instance, the chief demand for the Lakeville road came from residents of New Bedford and Taunton, as the road was desired as a connecting link between those two large cities. The Newburyport turnpike was favored, not only by the representatives of the towns through which it was built (Saugus, Lynnfield, Danvers, Peabody, Topsfield, Newbury and Rowley), but by the residents of Newburyport and the representatives of many automobile associations.

STATE HIGHWAYS.

During the year ending Nov. 30, 1910, the commission has laid out 52.95 miles of State road, 44 miles having been completed, besides such work as was left uncompleted last year, and 9 miles being in process of construction. The total length of State highway at the end of this fiscal year was 837.60 miles.

The total amount expended by the commission for the construction of State highways since the work began, including the planting of trees, is \$7,607,780.69.

There are now many petitions on file covering a total of more than 2,000 miles of road.

CHARACTER OF CONSTRUCTION IN 1910.

Of the 541½ miles of road which have been completed during the present year, 18 miles were ordinary water-bound macadam; 6 miles were constructed of gravel; 6¾ miles of sand bound with oil; 2½ miles were of bituminous macadam, where the binder is incorporated in the top course; 6½ miles were of ordinary macadam, covered with a surface binder of asphaltic oil; and 14¾ miles were constructed of gravel, with the top course bound with a bituminous binder.

The commission has continued its policy of filling in the gaps in the main lines of travel throughout the Commonwealth. Frequently this entails building through smaller and poorer towns, that the larger municipalities may more readily be reached. Not infrequently the *local* use of the road is small. The towns, however, recognize that in spite of such lack of actual use they are very much benefited, and therefore usually co-operate with the commission to the extent of building that portion of the road that runs through the villages.

The commission has felt that the money which the State spends on highways should be expended to a large extent where it will be of the greatest benefit to the various large cities and towns, by giving them good connecting roads and by furnishing roads for the farming communities over which they can get their produce to the large centers and markets economically and quickly.

It is evident that with less than half a million dollars per annum available for construction purposes, very little could be accomplished if this money were spent in the immediate neighborhood of large cities, or on any road where the traffic is so great that nothing short of an expensive pavement would be real economy. Only a few miles could be built before the funds available would be exhausted, leaving no money for the many miles of main roads so necessary for the convenience of gen-

eral travel. In furtherance of this plan, the commission has built during the past year upon the Boston-Newburyport line toward New Hampshire, completing the road in Salisbury to the New Hampshire line and building upon the same line in Ipswich. The town of Ipswich has co-operated by building a good macadam road through the village.

In Rockport the commission has built a piece of road in continuation of the line toward Cape Ann.

It has been building on the road along the Merrimac River; also on the line between Haverhill and Boston in North Andover, and on the line between Boston and Lowell. Some gaps have been filled in the line between Boston and Plymouth, as well as toward Cape Cod and Woods Hole. The road between Springfield and Pittsfield, connecting the Connecticut valley with the western part of the State, was improved last year by building around Jacob's Ladder, and much work has been done on this route this year, notably in the town of Chester. Between Springfield and Greenfield work has been done in Holyoke, Hatfield, Deerfield and Greenfield. On the line connecting Boston and Greenfield, *via* Fitchburg, as well as between Taunton and New Bedford, work has gone forward with reasonable rapidity.

"SMALL TOWN" ROADS.

The sum of \$64,584.86 has been spent on the so-called "small town" roads for their improvement. The expenditure of this money, together with such amounts as have been contributed by the towns themselves, has resulted in the improvement of about 41 miles of town ways, these roads remaining under the control of the municipalities. Since work of this character was first started there has been a total of about 235 miles of road improved, at a total cost of \$401,502.78.

The commission has co-operated with many towns under the "small town" act in improving sections of road upon what might be called secondary lines of travel on roads which were of benefit to the towns themselves and which served as feeders to the State highway system.

It especially calls attention to the growing interest that "small towns" have taken in the good roads question.

Only three years ago the total requests during the year from "small towns" for assistance under this act entailed an expenditure by the State of but \$39,321.95; while the money contributed by the towns to be spent under the direction of this commission on the same roads amounted to but \$33,724, or a total of \$73,045.95.

The growth of sentiment above referred to is one of great interest, and can best be summarized by a glance at what has been done this year. The total amount allotted by the commission for this purpose was \$117,236, and the contributions from towns have been \$69,700, or \$186,936 in all, — more than two and one-half times the amount spent in 1907. In the four western counties alone nearly 50 "small towns" have been helped.

As has been often stated, the policy of the State, as defined by this commission, is to lay out and construct State highways on what are generally recognized as through routes, and many miles of such roads have been completed. The work referred to as "small town" work connects many towns with these through routes, thus greatly increasing the usefulness of the State highways.

Formerly, the only money the commission had available for this work was \$75,000 annually from the loan fund; but the Legislature of 1910 amended chapter 534 of the Acts of 1909, so as to make available for this purpose 20 per cent. of the net amount of the so-called motor vehicle fees fund. This money is available for improvements of a minor character, as well as for the more permanent work, such as has been referred to as "small town" work. In many instances the commission has been able by a small expenditure of money to improve long sections of road. This work was of too transient a character, in the opinion of the commission, to warrant expenditures from the loan fund, and therefore would not have been possible except for the funds made available by this act.

On some roads the only work that has been done has been a widening out of the worst sections, shaping up the road, filling the holes and ruts, blasting out a few ledges, etc., and on the parts of the road which were good substantially no work was done. An example of such an improvement may be seen in

the town of New Ashford, where a few hundred dollars were expended upon about 5 miles of road.

The Newburyport turnpike, connecting Boston with Newburyport, was one of the places selected for the expenditure of this money. Here the commission has made substantial improvements in Saugus and Lynnfield, and has had the roads shaped and improved, not only in these towns, but in Peabody, Danvers, Topsfield, Ipswich and Newbury, so that with another expenditure next spring — if the towns through which the road passes will co-operate with the commission — there will be made a reasonably satisfactory road throughout its entire length.

Another section of the State where improvements have been made from the motor vehicle fees fund is on the road between Boston and Provincetown. There was already a reasonably good road as far down as Eastham, but from there to Provincetown there were some extremely bad sections of hilly, sandy roads, which were at times almost impassable even for extremely powerful automobiles. The commission has improved four or five of the worst places on this road by using an asphaltic oil mixed with sand, thereby hardening the hills and other places on the road, so that by next year, with the expenditure of a little more money, there will be a reasonably satisfactory road all the way down to Provincetown.

One of the most important expenditures from this fund has been made on what may be called the second through route from the Connecticut valley to the Berkshires, namely, the Northampton-Pittsfield road, *via* Williamsburg, Goshen, Cumington and Hinsdale.

These improvements were made possible by the act above referred to.

One feature of the commission's work should be carefully noted by the authorities in every town, viz., that the State expects the town to *maintain* in a *suitable manner* any piece of road that has been constructed there under the "small town" act. This law provides that if a town fails to so maintain, the commission *may* do so, and charge back to the town \$50 per mile per annum.

The commission endeavors to so arrange the work that one or more members of the Board shall personally study the needs of

each town that asks for aid or advice. This involves conferences with boards of selectmen, road commissioners and other interested parties, as well as a more or less careful study of the road petitioned for, in order that the Board may determine whether or not it ought to make the desired allotment.

During the present year conferences have been held with such officials or studies made in more than 285 cities or towns.

In many instances the case in question has involved *several* conferences.

ENGINEERING ADVICE TO CITIES AND TOWNS.

Under the law, the commission and its engineers are required to give expert advice and assistance to various cities and towns in regard to work to be done on their roads. No record has been kept of the actual expense of such advice and assistance, but the value of this branch of the work of the commission is certainly very great.

During the past year approximately \$185,000 has been spent upon roads in various municipalities where the roads have been built under the direction of the commission, and in many instances the contracts have been prepared by it.

While it is not possible for the commission to comply with all requests for assistance and advice, on account of the inadequacy of the money available, it is doing as much in this direction as it can, because it believes that it not only results in the securing of better roads to the town and better returns for the money expended, but that it is also of great educational value to the officials of the town who have charge of road construction or repair.

It has been the practice of quite a large number of towns in the Commonwealth to request the advice and assistance of one of the commission's engineers, to enable them to determine what should be done with their roads and what is the best method of spending the money which is available. This has resulted in the commission's sending one of its engineers to go over the roads with the selectmen or road commissioners, and advise them as to what had better be done with the money available, and as to what materials to use, method of construction, grades, etc.

MAINTENANCE.

With the advent of motor vehicles, the question of maintaining the highways became one of supreme importance. Up to that time the commission had been constructing State highways, but very little money had been available for their maintenance. Some of the roads were many years old, and the time had come when they needed substantial repairs in the nature of resurfacing. This time and the motor vehicles arrived simultaneously, and as a consequence our highways were rapidly deteriorating.

Therefore, in the year 1909, Governor Draper recommended to the Legislature that the appropriation for the maintenance of State highways should be materially increased, so that the roads could be put into good condition and properly maintained. He also recommended that, as motor vehicles were at least doubling the expense of maintenance of State highways, a graded fee should be imposed upon them, and that the money collected should be used for the maintenance of these roads. Both recommendations were adopted.

Up to the year 1907 the commission had had less than \$100,000 available yearly for the repair of State highways, which amount was barely sufficient to sand the roads, paint guard rails and clean out gutters, catch-basins, etc.

In 1908 the Legislature appropriated \$150,000 for maintenance, and \$85,000 was made available from the motor vehicle fees. About \$82,000 of this latter sum was expended. That same year, however, the commission's engineers estimated that over \$600,000 was necessary to put the State highways into good condition.

In 1909 the Legislature appropriated \$250,000 to enable the commission to put the State highways into better condition. That year about \$154,000 (including the balance available from 1908), collected for motor vehicle fees, was also spent.

In 1910 the commission had available from the motor vehicle fees fund \$316,000 (including a balance available from 1909), and the total amount spent for oiling, maintenance, etc., was \$504,000, there being \$200,000 available from the tax levy.

The commission believes that this expenditure has enabled

STATE HIGHWAY IN SUDBURY.



One Month after Oil Surface Treatment.



Fourteen Months after Oil Surface Treatment.

it to put most of the State highways into good condition, and that with a like amount available each year it can keep them in good order until there is a substantial increase in the number of miles of road that it has to maintain.

It is undoubtedly true, however, as the commission has stated in its reports for the last five years, that the damage done to the roads by motor vehicles is making a very much larger amount of money necessary for the maintenance of highways than was formerly needed. It is also making new methods of construction and maintenance necessary. Where there is a large amount of automobile travel, especially high-speed travel, roads cannot be maintained without the use of some bituminous binder, either in their construction or as a surface coating. With the increase in the number of automobiles, this is becoming true upon more and more miles of road each year.

Many miles of road have been successfully maintained in the past two years merely by a surface treatment of tar or asphaltic oil. The commission believes that the continuation of this treatment from year to year, as needed, will enable it to maintain its roads in good condition where team travel is not extremely heavy. It must be remembered, however, that this treatment was made necessary by the advent of the automobile, with its rubber tires and high speed.

The fact that a macadam road will not withstand such travel was again demonstrated upon the piece of road that was built in Becket in 1909, around Jacob's Ladder, so called, where the commission constructed a long stretch of macadam road, using the best local stone available. The road was not open to travel until late in the fall of 1909, but before the first of July, 1910, the surface of the road had been torn up in many places by automobiles, and on the corners and curves deep ruts had formed. Consequently, when the road was less than a year old the commission was obliged to spend over \$1,400 a mile in repairing it, putting it back into shape and applying a coat of asphaltic oil. When it is remembered that this road is in a sparsely settled country district, merely part of a main line between the Connecticut valley and Berkshire County, and that nevertheless there is sufficient automobile travel to make oiling it an absolute necessity for its preservation before it has been

used one year, it will be realized that some such treatment of macadam roads will have to be adopted over a large percentage of the State highways in the Commonwealth. This treatment costs all the way from \$500 to \$1,200 a mile, according to the width coated, the length of haul, material available, and the class and character of the bituminous binder that it is necessary or advisable to use.

During the past year some hundreds of miles of road have been treated with some form of bituminous binder by the authorities in very many municipalities scattered throughout the Commonwealth. This fact shows how competent those officials are, and how quick they are to recognize the value of any new treatment and to adopt it for use on the roads under their charge. The advance in this respect has been unequalled in road building, the commission believes, when one considers that five or even four years ago all such work was regarded as experimental, and, by most road builders, as of extremely doubtful value.

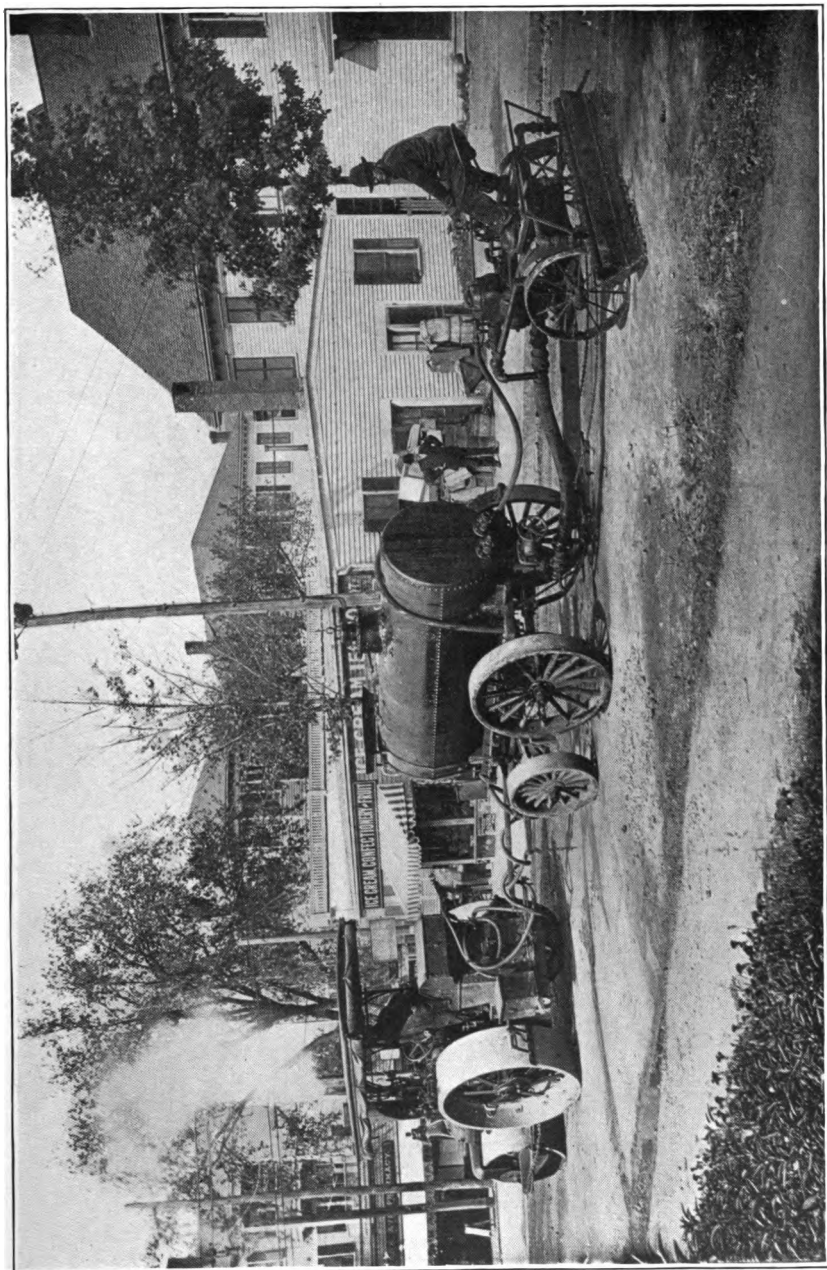
THE USE OF BITUMINOUS MATERIALS.

During the past year the commission has used over 1,300,000 gallons of bituminous material, either in constructing its roads or in surface treatments, including various tars, tarvias and asphaltic oils sold under different trade names.

On about 249 miles of road it has been necessary to use some form of bituminous treatment, either during construction or in resurfacing. Undoubtedly in the next few years the number of miles of road that will have to be so treated will be materially increased.

During the past year the commission has put a bituminous surface coat upon 219.3 miles of old road, and has incorporated a bituminous binder in the top surface, either in the construction of new roads or in the resurfacing of old roads, on about 30 miles of road.

It is evident that the total amount of money available from the motor vehicle fees fund will have to be expended in the use of such bituminous binders, leaving all of the other ordinary repairs, such as cleaning gutters and catch-basins, sanding the roads, etc., to be paid for out of the ordinary maintenance money



One Type of Surface Spraying Equipment in Use by the Commission.

appropriated by the Legislature, as well as the resurfacing of roads where there is not sufficient automobile travel to make a bituminous binder necessary.

CONDITION OF STATE HIGHWAYS.

The commission feels that it can congratulate itself and its engineers upon the results accomplished with the money available in the last three years. The State highways were then rapidly deteriorating, and our good macadam roads would certainly have become a thing of the past had money not been made available as soon as it was.

To-day, however, the commission feels that it has the problem well in hand. Taken as a whole, the State highways throughout the Commonwealth are in better average condition than they have been at any time in the past since any of the roads have been constructed long enough to begin to wear out.

The commission is well aware, however, that there are quite a number of miles of State highway for which there has not been sufficient money available to enable it to put them into satisfactory condition up to the present time. There are even now some pieces of State highway that are in bad condition, though these are very few and far between.

The commission thinks, however, that, with the same amount of money available next year that there was this year, it can put those stretches of road also into good condition by resurfacing them, and that it can then maintain the State highways in satisfactory condition by the use of various bituminous binders as required from time to time.

FUTURE MAINTENANCE.

There is not sufficient data available, either in this country or abroad, to enable any engineer to estimate with certainty the final results of the adoption of these new methods of construction and maintenance. It seems probable, however, that where the travel is not extremely heavy the cost of the yearly maintenance of State highways may not be any more, when all the roads have been given a bituminous treatment, than it

would have been under the old methods, if the roads were maintained in equally good condition.

Experience in this country, in England and on the Continent has invariably shown that to properly maintain a macadam road where there was any considerable amount of travel it was necessary to spend anywhere from \$250 a mile to \$600 a mile a year in the country, and a much larger amount upon the main roads with heavy traffic near the centers of population.

SAND AND OIL ROADS.

As is stated above, the commission has this year constructed $14\frac{3}{4}$ miles of gravel road with the top course bound with a bituminous binder, and $6\frac{3}{4}$ miles of sand road bound with oil.

This is a relatively new method of construction. The commission has obtained some very satisfactory results, notably the piece of road constructed in Wayland, where the road was built of gravel that was heated and mixed with an asphaltic oil containing various quantities of asphalt. This road is now two years old, and has remained in an extremely good condition.

The commission has also built stretches of road where a bituminous binder has been used in connection with sand or gravel in various other places, as, for instance, on the road from Marlborough to Hudson, the road between Boston and Newburyport, in Ipswich and Salisbury, and in many places on the road to the Cape.

Asphaltic oil has been used in various ways in different places. The sand or gravel has been heated and mixed with the asphaltic oil and spread upon the road, which has then been properly shaped and rolled; or the oil has been heated and used by the building-up process, so-called, using an application of about $\frac{3}{4}$ of a gallon to the square yard after shaping and hardening the surface of the roadway in the subgrade, covering with all the sand which the oil would absorb, then giving another coating of $\frac{3}{4}$ of a gallon to the square yard, again covering with sand, and finally giving a coating of substantially half a gallon to the square yard and covering that again with sand.

Where the subgrade was hard and well shaped and a uniform spreading of the oil was secured, this method has produced reasonably satisfactory results. The road generally needs reshaping in some places, and where it fails it seems usually to be due to the uneven distribution of the oil. When this happens, the road develops holes or an uneven surface, and more oil has to be added, and the whole shaped, crowned and rolled back into place. This can be done the second season, and so far has resulted in producing a reasonably satisfactory road for much less money than it would cost to build a stone road.

It is somewhat cheaper to build by this method than it is to heat all the sand or gravel and mix with the oil before spreading upon the road.

So far as the commission or its engineers can ascertain, the unsatisfactory condition of a few pieces of road so built has been due either to faulty methods of construction, such as uneven spreading of the oil, or to the fact that the right quality of oil could not be secured.

Where the travel is not heavy, especially in places where the cost of gravel or stone is prohibitive because of the long haul or the absence of stone or gravel in the neighborhood, as is the case in many parts of the Commonwealth, particularly in Cape Cod, it seems as if this class and character of road would come very largely into use.

In such localities it can be built for from one-third to one-half the cost of a macadam road, and it can be shaped from time to time when it gets out of shape or rutted; and will furnish a road, at a reasonable cost, which is entirely adequate and sufficient for the class of travel which goes over it.

The use of this method of construction will provide roads in many places, within a few years, connecting various distant parts of the State which it would be impossible to connect with macadam roads, because of the large amount of money that would be required to build them. It also provides a dustless road and one which is not injured materially by automobile travel.

The use of this asphaltic oil will prove to be of great value, not only where the soil is of sand, as it is on Cape Cod, but

in many other places in the State where it is impossible to obtain good binding gravel but where there is plenty of gravel of a loose, sandy nature, often containing a large proportion of stone or pebbles which the binder will cement together. Satisfactory results can be obtained by its use with this class of material.

Eastham Sand-oil Road built in 1905.

The commission started on this character of construction by experimenting on a piece of road built in the town of Eastham in 1905. An asphaltic oil was used, spread as described above, and broken up with a harrow, after which it was shaped and rolled. The cost at that time was about 17 cents per square yard. The next spring it had to be reshaped and more oil used before it could be put into a reasonably satisfactory condition. From time to time since then ruts have developed, and in some instances weak places in the road have been noticeable, where horses broke through; but in every instance this seemed to be due to the lack of a sufficient quantity of oil at that particular point. The road has been improved from time to time by breaking it up and reshaping it, or by filling the holes and ruts as they developed. Every year this road has improved in condition, and the oil seems to retain its life and binding qualities.

As stated, the first cost was 17 cents per square yard, but a considerable sum of money was required to put it in order the next year. The cost since the first year and up to the present time has amounted to nearly 20 cents per yard, so that the total cost for construction and maintenance for five years has been about $36\frac{1}{2}$ cents per square yard, or \$3,400 a mile for a road 16 feet wide. In the mean time, it has been reasonably satisfactory for travel during the past five years.

The commission is calling special attention to this particular character of construction, not because such roads are preferable to roads built of macadam or good gravel, but because, where these materials are not obtainable, or where the money for their use is not available, roads built in the above-described manner can be produced at a largely reduced cost, and in many places they will be a great improvement over the roads which they replace.

BRIDGES AND CULVERTS.

All the bridges built during the year have been made of reinforced concrete, as properly designed bridges of this type seem to be economical for small spans, where the entire bridge, including the abutments and superstructure, must be constructed.

A list of the bridges built during the year, not including those built under a special act of the Legislature, will be found in the report of our chief engineer, Appendix A.

WORK UNDER SPECIAL ACTS.

Parker River Bridge.

The bridge over Parker River in the town of Newbury, for the repair of which the Legislature appropriated \$20,000 in 1909, was nearly completed in the fall of last year, as was stated in the commission's report.

Early in 1910 the work was completed and the bridge opened for travel.

Chester.

Under chapter 574 of the Acts of 1910, \$20,000 was appropriated by the Legislature, and the commission was directed to construct a bridge over the Westfield River in the town of Chester.

Plans were made for this bridge as early in the season as possible, and about the middle of August a contract was let for the construction of a reinforced concrete bridge and approaches.

Most of the concrete structure is completed, and the bridge will be finished early in the year.

Marblehead Breakwater.

Under chapter 578 of the acts of 1910, \$50,000 was appropriated for the construction of a breakwater and highway along the causeway connecting Marblehead and Marblehead Neck. Plans were prepared for a concrete sea wall on the ocean side and a concrete face on the masonry wall on the harbor side, with a roadway between at an elevation greater than the old road.

The contract for this work was let on July 26, 1910. Both of these walls are completed, a part of the filling has been put upon the roadway and the riprap is being placed upon the ocean side of the sea wall. The construction of the road surface will probably be completed by May 15, 1911.

Revere Traffic Road.

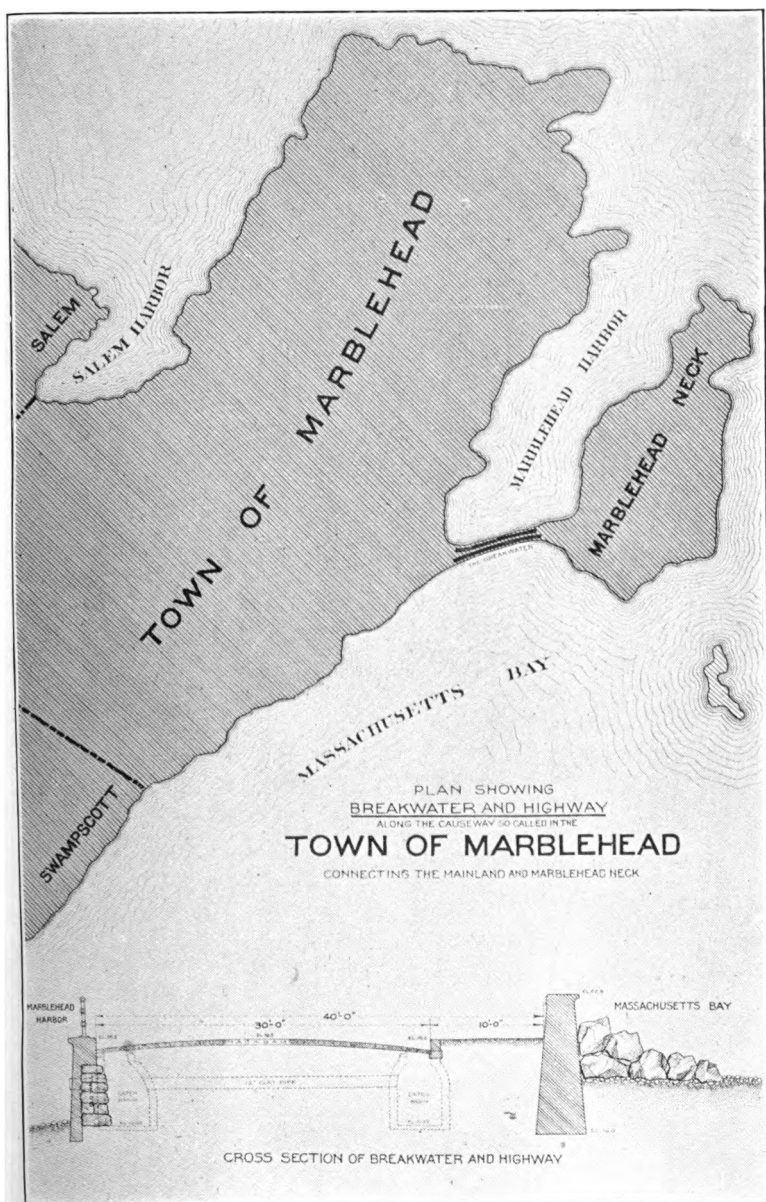
By chapter 646 of the Acts of 1910, the commission was authorized to expend the sum of \$125,000 during the present year in purchasing, or taking by right of eminent domain, land in the town of Revere from a point at or near the junction of Ocean Avenue and Revere Street to a point at or near the Point of Pines station, adjoining the metropolitan boulevard. This land was to be taken for the purpose of securing a 60-foot location for a highway.

The purpose of the act was to secure land on which a traffic road could be constructed to connect Lynn and the northern part of Essex County with Boston, by way of East Boston.

It was evident that, before any location for such a highway was secured or determined upon, the problem of the further extension of such a highway from Revere Street toward East Boston to Eliot Circle, or of widening the existing highways so as to provide adequately for the traffic, must be carefully considered. It would be useless to construct a traffic road between the points mentioned in the act if there were no proper facilities by which traffic could continue on toward its destination.

Surveys and careful studies covering the whole situation were begun, without regard to whether the town, county, metropolitan district of the Commonwealth would, eventually, take up the work of completing a through traffic road. The result of these studies and surveys showed that there were two feasible routes that could be laid out and constructed with the least expenditure, one of which is on the west side of the Boston & Maine Railroad tracks, the other upon the east side, adjoining the metropolitan parkway.

There are advantages and disadvantages in both routes. Possibly the cost of securing the rights of way may be a deter-



mining factor, especially in connection with the probable cost of any future extension beyond Revere Street.

The commission has, therefore, begun to secure options on both proposed lines, in order to determine the comparative cost of the two locations.

The amount of work involved in making the surveys and estimates of cost of construction and land damage has required so much time that the commission is unable to render a completed statement at this time. It is desirable, therefore, that the money which the commission was authorized to spend during the present year be made available for 1911, if the Legislature determines that this work is to be done.

Signs on Highways.

Under chapter 117 of the Resolves of 1910, the commission was requested to investigate as to whether or not any modification of existing law is necessary or advisable in respect to the law relating to the placing of signs within the limits of highways, and whether or not it was practicable to secure uniformity in signs on highways containing information for the travelling public, and to make a report and recommendation to the Legislature of 1911.

The commission has received a great many letters upon this subject from various organizations and representatives, and it held a public hearing at its office, which was very largely attended by persons interested, and many of them represented various civic societies.

The general consensus of opinion seemed to be that the present law, as it now stands on the statute books, was fair and just, and was not working any undue hardship on any person; and that it was better at the present time that it should not be altered.

The commission is naturally thoroughly familiar with road conditions and the signs upon the roads throughout all parts of the Commonwealth, and it recognizes the objections to many such signs. It feels, however, that the present law has worked reasonably satisfactory to all concerned, and that it enables the local authorities, or people who object to particular signs

which have been erected without authority, to take them down; and that it is best, on the whole, to leave the law as it is, where it is pretty well understood by the public, rather than attempt to change it. It therefore recommends that no change be made in the existing law.

TREES ON STATE HIGHWAYS.

Insect Pests.

The work of preserving trees growing along State highways from insect pests has been done under the direction of the State Forester's department on all State highways east of the city of Worcester.

Under an arrangement with the commission, that department has taken charge of this work for several years, and the results obtained have been most satisfactory.

In the last two years the elm-leaf beetle has done a great deal of damage in many sections of the State. Our fine roadside elms are cherished landmarks of the Commonwealth, and they should be preserved.

In localities where the trees are infested with the elm-leaf beetle, as well as the brown-tail and gypsy moths, one spraying of the trees, at the proper season, will accomplish good results.

Forester's Department.

The planting and care of the trees growing along the State highways has remained under the charge of the forester of the commission, Mr. E. W. Breed, whose report will be found in Appendix C.

Since the work was authorized 13,831 trees have been planted along State highways.

The last two seasons have been so dry that it seemed best to leave the trees in the nursery and to await better conditions.

The commission has been preparing the ground this fall for the planting of 1,356 trees next spring in Spencer, Brookfield, Palmer, Monson and Wilbraham. This planting will furnish a practically continuous line of shade trees on the State highway from Leicester Center to the Springfield line.

Trees in the Nursery.

There are now 1,313 fair-sized trees in the nursery, ready for planting, and 4,335 smaller trees which are being developed for future use.

In spite of the extreme droughts of the last three seasons, there was a loss of only 6 per cent. of the trees planted.

RECOMMENDATIONS FOR LEGISLATION.

Changes in the Automobile Law.

The automobile law enacted by your honorable bodies in chapter 534 of the Acts of 1909, has, we feel, given satisfaction. It may not be desirable to change the law in any respect at the coming session of the general court. There is, however, an apparent omission, which the commission believes should be rectified if any amendments are to be made at all in the law. It should be made an illegal act for a person having the control of a motor vehicle to permit another to operate it who has not the legal right to operate. This would apply particularly to the operation of motor vehicles by persons under sixteen years of age, and by unlicensed persons when not accompanied by a licensed chauffeur or operator, as required by law.

Obsolete Records.

Another matter the commission would like to call to your attention is the question of obsolete records.

Under the motor vehicle law, as at present in force, by sections 2 and 26 of chapter 534 of the Acts of 1909 the Massachusetts Highway Commission is required to keep at its main office a proper record of all applications and of all certificates and licenses issued by it.

These records are now becoming very cumbersome and are of little value after the expiration of two years, and keeping them on file involves the State in unnecessary expense and the commission's employees in considerable labor. There seems to be no corresponding advantage to the public.

The records for the preceding year, including applications for registration and licenses and copies of the licenses and cer-

tificates issued, are of value in issuing new licenses and certificates during the current year; they are also occasionally needed in court; but after the expiration of two years these papers become of no particular value to the commission or the community.

The commission would suggest that this condition probably exists in many other departments, not only of the State, but of various cities and towns, where papers which have become of no value are required to be kept as a part of the public records. This is probably particularly true of applications for licenses of various kinds, such as dog licenses, hunters' licenses, etc., and copies of the licenses themselves.

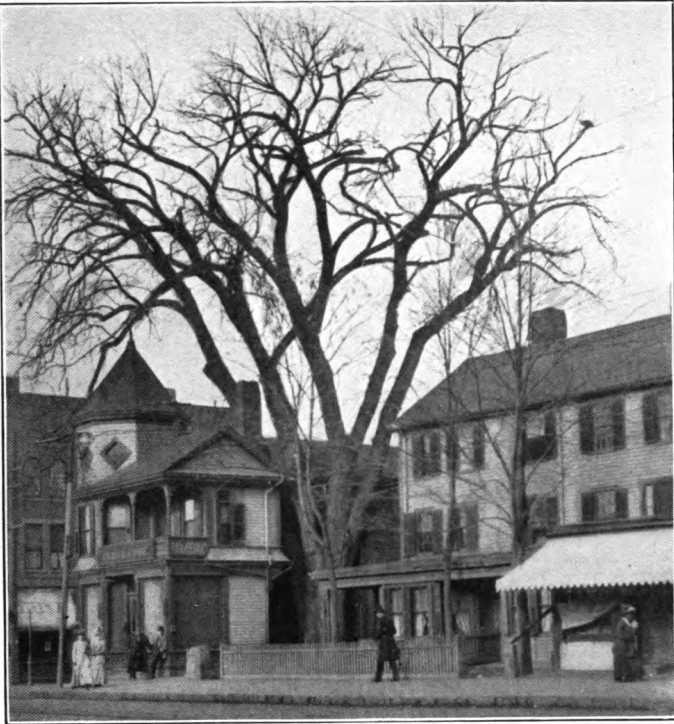
The commission would recommend, therefore, that the Legislature consider the advisability of the passage of a general law authorizing the destruction of such useless records after the expiration of a suitable period of time, or when they have outgrown their usefulness, with the approval of the Commissioner of Public Records. It recommends that this department, at any rate, be authorized by law to destroy, in its discretion, obsolete applications, records and copies of certificates and licenses, excepting only those of the current and the preceding years, and all obsolete number plates.

Suppression of Insect Pests.

The ravages of the elm-leaf beetle are doing serious damage to the splendid elm trees situated on State highways in many sections of the Commonwealth. It often happens that the life of the tree itself is threatened.

The commission, therefore, recommends that sufficient money be made available in the current appropriations to preserve the valuable trees along the State highways, not only from destruction by the gypsy and brown-tail moths, but from the elm-leaf beetle and other pests as well.

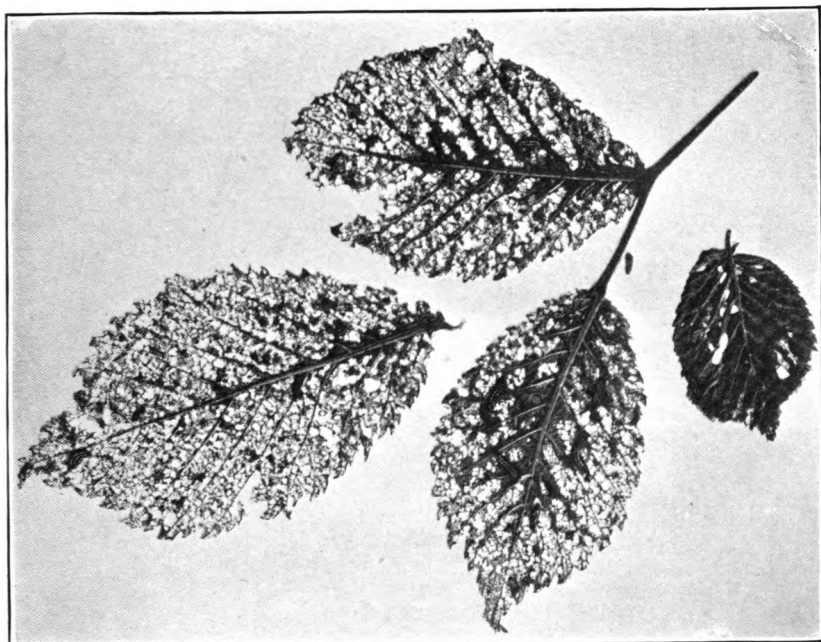
All that is needed to accomplish this result is that the appropriation bill be so worded that the money may be used for the suppression of any insect pest which threatens the trees on State highways.



Elm in Perfect Foliage in 1908, — dead in 1910.



Elm Tree in Perfect Foliage.



Work of Elm Leaf Beetle, taken July 2.



Elm Leaf Beetle feeding on New Leaves, taken August 15.

AUTOMOBILE DEPARTMENT.

Special Regulations.

There have been very few requests for any special regulations. The requests that have been made were almost invariably that motor vehicles be excluded from certain small and narrow park roads, or from narrow, crooked and dangerous country roads which were not on main lines of travel.

Automobile Hearings.

The number of hearings on automobile cases held by the commission has constantly increased. During the past year the commission has held 197 such hearings. They have usually occupied the entire day on Wednesday, and quite often have had to be held on other days of the week. It has also frequently been necessary to have some of the cases heard by the commissioners individually, and on many days there have been two or three such hearings going on at the same time.

An operator is, of course, entitled to an appeal to the full Board, but up to the present time no one has requested it.

In addition to these hearings, the commission receives every week a large number of reports of investigations made by its investigators and these have to be read and acted upon. There were 429 such reports made of accidents occurring in 1910.

Licenses revoked or suspended.

During the year 283 licenses or registration certificates were revoked or suspended. One hundred and seven operators' licenses and five certificates of registration were revoked where the operator had no license. One hundred and seventy licenses to operate and one dealer's registration certificate were suspended for various terms.

Ninety-four of these suspensions or revocations resulted from convictions in court, abstracts of these cases being forwarded to the commission as required by law.

Twenty-one suspensions or revocations were as a result of complaints made to the commission and after hearings were held thereon.

One hundred and sixty-eight were made as a result of the investigations made under the direction of the commission and after a hearing, in all cases where the license was revoked, and hearings were also given in all cases where the license was suspended, whenever this was requested by the operator.

Death Cases.

During the year 73 deaths have resulted from the operation of motor vehicles. In all death cases, where possible, the license of the operator has been suspended and the accident investigated, as required by law. One of these occurred in Vermont, but a Massachusetts operator was involved.

Fourteen of these licenses have been revoked after investigation and a hearing, thirty-six have been reinstated and five are pending. In nine cases the operator himself was killed. In eight cases the operator had no Massachusetts license, but in two of them the registration of the car was revoked. In one case the commission was unable to ascertain who the operator was.

There were five other deaths which had an indirect connection with motor vehicles. There were two deaths from heart failure, one being an operator and the other a pedestrian. One person was killed by inhaling gasoline fumes; one by being burned when the gasoline tank in an automobile exploded from a match being thrown on the floor and setting it afire; and one person was killed when a horse, frightened by a motor vehicle, bolted.

The number of deaths has increased, there being more deaths this year in proportion to the number of automobiles registered than there were last year.

Necessity for the Exercise of Due Care.

The commission wishes again to call the attention of the public to the fact that in very many cases which it has had carefully investigated the accidents happened entirely from careless or reckless action on the part of the persons not in the automobiles, who were killed or injured often because they stepped directly out into the street without looking, and from behind some team, post or other obstacle where they could not possibly

be seen by the driver of a team or the operator of an electric car or motor vehicle, and under circumstances where such action would not, naturally, be expected. In many other instances, while the pedestrian was clearly grossly careless, to say the least, the commission has suspended or revoked the license of the operator, because he, also, was not as careful as he should have been, though many times the accident has been less due to his fault than to the fault of the pedestrian.

Quite a number of these cases have happened when a motor vehicle was being operated at night without having acetylene lights, and at a rate of speed too great for the operator to be able to see the road sufficiently far ahead to enable him to stop after he saw a pedestrian or team and before he hit it; because the operator did not slow down when he was blinded by an electric light, either in the street or on a street car, and therefore did not see the pedestrian or team in time; or because he ran too fast and too close to an electric car which had stopped to allow passengers to alight, so that if the passenger got off without looking, as so many people do, the operator was unable to avoid hitting him.

Causes of Suspensions and Revocations.

Reckless operation,	50
Operating while under influence of intoxicating liquor, . .	22
Accidents resulting in death,	57
Improper operation,	88
Refusing or neglecting to stop after accident,	9
Three overspeeding convictions,	8
Operating automobile without owner's permission,	23
Other offences,	26
<hr/>	
Total,	283

There was an increase of 83 licenses suspended or revoked this year, there being 283 this year, against 200 last year.

Automobile Accidents.

According to the report of the investigating department, which will be found in Appendix B, there have been 1,182 automobile accidents during the year. Seventy-seven people have been killed and 963 injured.

Of the number killed, 25 were occupants of automobiles, 44 were pedestrians, 4 were bicycle riders, 3 were occupants of carriages and 1 was a street car passenger.

Of the 963 injured, 378 were occupants of automobiles, 406 were pedestrians, 64 were bicycle riders, 111 were occupants of carriages and 4 were street car passengers.

Eight hundred and sixty-seven of these accidents occurred in the day time, and 315 after dark; 222 occurred on country roads, and 960 on city or town streets. It is interesting to note that the number of accidents on country roads has very materially decreased, there having been 314 in 1909, and only 222 in 1910. On the other hand, the number of accidents occurring on city or town streets has increased, there having been 816 in 1909, and 960 in 1910. Of course the number of automobiles registered has also increased, 31,360 registration certificates having been issued this year, while 23,971 were issued during the year 1909.

Court Cases.

During the year 73 out of 83 courts in the Commonwealth sent abstracts of their records to the commission, as required by law. The commission has been endeavoring to secure such abstracts from all the courts. During the year 3,706 abstracts, containing the action taken by the courts in automobile cases, were received by the commission. These abstracts show that, of the persons complained of, 3,328 were found guilty in the lower court, 114 were found not guilty, 534 complaints were placed on file, and 112 were nol prossed. Four hundred and four cases were appealed to a higher court.

The complaints and convictions were for various violations of the law: 1,870 were for overspeeding; 74 for reckless operation; 35 for operating while intoxicated; 24 for using an automobile without authority; 10 for operating so as to endanger the lives and safety of the public; 77 for failure to properly display registration number, or for having no number; 230 for operating without a license; 100 for operating without having a registration certificate; 76 for operating an unregistered motor vehicle; 63 for refusing to stop when signalled by an officer; 126 for operating without proper lights; 513 for

violation of the park rules; 457 for failing to give a signal when approaching an intersecting way; and 219 for miscellaneous offenses.

The abstracts show that fines aggregating \$31,596.66 were imposed by the courts. Of course they were not all necessarily collected.

Examinations for Licenses.

The examiners of the commission held 5,433 examinations during the fiscal year 1910. This was an increase of 804 during the year. There were 4,138 persons examined, many of them having to be examined several times; 1,268 failed upon their first examination; 3,701 persons passed the examinations and received licenses, and 437 had to be refused after being examined several times. In other words, over 10½ per cent. of the persons who were examined failed to pass, upon examination and re-examination.

The main cause of failure was inability to pass the test of actual operation upon the road.

Of the applicants for a license, 1,263 were unable to operate properly during the road test.

More than half the number of examinations were held in Boston, and the remainder were held in Brockton, New Bedford, Fall River, Fitchburg, Lowell, Salem, Pittsfield, Springfield and Worcester.

Further details concerning the work of the automobile department will be found in Appendix B.

Automobile Fees.

The provisions of the law relating to graded fees went into effect on Jan. 1, 1910. It seems to have operated very satisfactorily, and to be approved of by a vast majority of the automobile owners of high-powered cars.

During the year 1910, 31,360 automobiles and 3,370 motor cycles were registered. The amount of fees collected from the registration of these automobiles was \$296,320, — an average fee of \$9.45 each. From 649 manufacturers and dealers \$19,109 was collected, \$6,698 was collected from motor cycle fees and \$51,910 from operators' licenses, fees, etc. During the year 41,259 operators' and chauffeurs' licenses were issued.

The total amount collected from registration fees, license fees, sundry receipts, etc., was \$374,789.94. From this amount had to be paid the cost of number plates, salaries of clerks, investigators, etc., in the automobile department, as well as many other expenses, 80 per cent. of the balance being available for the repair of State highways and the other 20 per cent. being available for the repair, improvement or construction of roads on the through routes of travel in the towns, under authority of chapter 525 of the Acts of the year 1910.

Estimated Revenue from Automobiles in 1911.

The commission feels that it would be safe to estimate that the revenue derived from automobile fees in 1911 will be as great but not much greater than in 1910. While it believes that the number of automobiles registered will constantly increase, it seems evident from present indications, as shown by trade reports, etc., that there is a general tendency toward smaller and lower-powered cars, and that the increase will come in the smaller cars, on which lower fees are paid, rather than in the larger cars, which pay high fees.

More Investigations of Automobile Accidents.

The commission also believes that one very important branch of its work can be very materially increased, and this is in the line of investigations and reports upon automobile accidents; also, perhaps, by having some of its investigators actively engaged, all the time, in prosecuting cases of flagrant violation of the automobile law and reckless operation. If this is to be done, it will be necessary for the commission to employ more investigators and examiners.

The commission, through its investigators, prosecuted and secured convictions in 47 cases in court during the year.

While, on the whole, it seems as if there has been considerable improvement in the way in which motor vehicles are being operated, it is self-evident to any one that there are still far too many cases of reckless operation, and that everything possible should be done to take the drunken and reckless operator off the road. The most effective method of dealing with these

operators in the past has seemed to be through the action taken by the commission in suspending or revoking their licenses.

In very many cases where accidents have been investigated by the commission, and where, in the opinion of the commission and its investigators, the operator was careless, reckless or intoxicated, and his license has been suspended or revoked for abundant cause, there has been no adequate punishment inflicted by the courts through prosecutions by the police and other officials of the law. In several instances where death has occurred, and where the commission has revoked the operator's license, there has been no conviction in court, sometimes because the grand jury brought in a "no bill," and other times because the operator was not prosecuted. In a number of cases where the offense has seemed serious to the commission, very small fines have been imposed by the court. Often the only real punishment imposed which would tend to prevent the recurrence of such offenses has been the revocation of the operator's license by the commission.

The commission believes, therefore, that it would be wise for it to investigate as many of the more serious accidents as possible, and that it is a wise expenditure of money to have a sufficient force to enable it to have this work done promptly and efficaciously, even though less money may be left for the repair of State highways and through roads.

It seems to the commission that the great amount of time which is involved in holding so many hearings and in reading the reports of the investigators is time that is well spent, from a public point of view.

EXPENDITURES.

The following is a summary of the expenditures of the Massachusetts Highway Commission from Dec. 1, 1909, to Nov. 30, 1910:—

CONSTRUCTION EXPENDITURES.

TOWN OR CITY.	Amount.	Totals.
<i>Barnstable County.</i>		
Barnstable,	\$11,444 64	\$49,751 84
Bourne,	6,370 09	
Brewster,	210 69	
Chatham,	5,782 18	
Dennis,	149 14	
Eastham,	8,739 75	
Falmouth,	11,819 49	
Harwich,	45 14	
Orleans,	34 73	
Truro,	63 89	
Yarmouth,	121 65	
Sandwich,	4,970 45	
<i>Berkshire County.</i>		
Adams,	\$6,010 59	43,949 92
Becket,	8,768 13	
Cheshire,	22,210 55	
Clarksburg,	1 55	
Hancock,	68 61	
Hinsdale,	2 33	
Lee,	402 83	
Lenox,	51 51	
North Adams,	33 93	
Pittsfield,	3,306 20	
Richmond,	14 75	
Stockbridge,	3,057 75	
Williamstown,	21 19	
<i>Bristol County.</i>		
Acushnet,	\$1 49	17,119 01
Attleborough,	78	
Dartmouth,	1 46	
Dighton,	6,066 29	
Easton,	78	
Fairhaven,	1 48	
Freetown,	4 20	
Mansfield,	78	
North Attleborough,	78	
Norton,	12 20	
Rehoboth,	1 46	
Seekonk,	1 46	
Somerset,	3,741 95	
Swansea,	7,280 67	
Taunton,	1 77	
Westport,	1 46	
<i>Amount carried forward,</i>		\$110,820 77

CONSTRUCTION EXPENDITURES — *Continued.*

TOWN OR CITY.	Amount.	Totals.
<i>Amount brought forward,</i>		\$110,820 77
<i>Dukes County.</i>		
Chilmark,	\$7,161 83	7,161 83
<i>Essex County.</i>		
Andover,	\$36 11	
Beverly,	38 84	
Essex,	126 71	
Gloucester,	7 49	
Groveland,	2 33	
Hamilton,	6,449 97	
Haverhill,	12,587 73	
Ipswich,	7,374 57	
Merrimac,	1,142 32	
Methuen,	2 02	
Newbury,	5 44	
Newburyport,	6 99	
North Andover,	8,495 99	
Rowley,	2,423 13	
Salem,	1,867 37	
Salisbury,	11,010 33	
Swampscott,	8 81	
Wenham,	12 31	
West Newbury,	1,662 57	
Rockport,	2,518 48	55,779 51
<i>Franklin County.</i>		
Deerfield,	\$74 55	
Erving,	4,509 20	
Greenfield,	6,376 20	
Montague,	2,168 74	
Northfield,	6 06	
Orange,	605 87	
Sunderland,	579 06	
Whately,	1 01	14,320 69
<i>Hampden County.</i>		
Agawam,	\$3,308 31	
Brimfield,	1 17	
Chester,	14,752 32	
Chicopee,	2 56	
East Longmeadow,	9,781 47	
Holyoke,	16,311 19	
<i>Amounts carried forward,</i>	\$44,157 02	\$188,082 80

CONSTRUCTION EXPENDITURES — *Continued.*

TOWN OR CITY.	Amount.	Totals.
<i>Amounts brought forward, . . .</i>	\$44,157 02	\$188,082 80
Monson,	5 82	
Palmer,	12,261 27	
Russell,	1 55	
Westfield,	12 17	
Wilbraham,	15 93	
		56,453 76
<i>Hampshire County.</i>		
Amherst,	\$14 28	
Belchertown,	3 81	
Easthampton,	61 46	
Granby,	1 55	
Hadley,	43 55	
Hatfield,	15,710 82	
Huntington,	242 97	
Northampton,	21 76	
South Hadley,	589 97	
Southampton,	2,575 82	
Ware,	7,901 97	
		27,167 96
<i>Middlesex County.</i>		
Acton,	\$14 21	
Ashby,	1,676 30	
Ashland,	7,736 54	
Boxborough,	18 81	
Chelmsford,	5,414 38	
Concord,	112 38	
Framingham,	3,481 58	
Holliston,	7,365 98	
Hudson,	1 32	
Littleton,	110 75	
Lowell,	71 16	
Marlborough,	895 78	
Natick,	132 31	
North Reading,	16 52	
Pepperell,	7,326 08	
Reading,	24 18	
Somerville,	1,900 80	
Stoneham,	31 07	
Sudbury,	9 17	
Tewksbury,	81 65	
Townsend,	1,993 99	
Tyngsborough,	5,816 09	
Wayland,	20 05	
Westford,	1 55	
<i>Amounts carried forward, . . .</i>	\$44,252 65	\$271,704 52

CONSTRUCTION EXPENDITURES — *Continued.*

TOWN OR CITY.	Amount.	Totals.
<i>Amounts brought forward, . . .</i>	\$44,252 65	\$271,704 52
Weston,	26 41	
Wilmington,	10,550 33	
Winchester,	78	
		54,830 17
<i>Norfolk County.</i>		
Canton,	\$0 78	
Foxborough,	2 88	
Franklin,	4,033 79	
Needham,	6 22	
Norfolk,	7 23	
Norwood,	9 01	
Plainville,	78	
Quincy,	3,124 87	
Randolph,	682 09	
Sharon,	41 48	
Stoughton,	78	
Walpole,	13 37	
Wellesley,	56 75	
Westwood,	6 53	
Wrentham,	11 04	
Dedham,	1,040 87	
		9,038 47
<i>Plymouth County.</i>		
Bridgewater,	\$0 78	
Brockton,	1 55	
Duxbury,	60 42	
Lakeville,	1,839 12	
Marion,	1 48	
Marshfield,	12,015 66	
Mattapoisett,	1 48	
Middleborough,	4 66	
Plymouth,	6,253 59	
Rochester,	1,926 95	
Scituate,	9,359 85	
Wareham,	6,953 10	
West Bridgewater,	1 08	
		38,419 72
<i>Worcester County.</i>		
Athol,	\$4,479 49	
Auburn,	56 45	
Barre,	37 61	
Blackstone,	3,719 85	
Brookfield,	40 60	
Charlton,	2,043 87	
Douglas,	1 79	
<i>Amounts carried forward, . . .</i>	\$10,379 66	\$373,992 88

CONSTRUCTION EXPENDITURES — *Concluded.*

TOWN OR CITY.	Amount.	Totals.
<i>Amounts brought forward, . . .</i>	\$10,379 66	\$373,992 88
Fitchburg,	30 15	
Gardner,	71 08	
Grafton,	9 56	
Harvard,	4,731 03	
Hardwick,	1 40	
Holden,	4 27	
Lancaster,	1 32	
Leicester,	19 13	
Leominster,	8 08	
Lunenburg,	8,674 29	
Milford,	8,254 98	
Millbury,	1 79	
North Brookfield,	6,283 08	
Northborough,	14 07	
Oxford,	2,379 61	
Phillipston,	5,672 40	
Princeton,	25 57	
Rutland,	2 72	
Shrewsbury,	29 61	
Southborough,	2,361 76	
Spencer,	7,552 88	
Sterling,	564 05	
Sturbridge,	2,325 67	
Sutton,	1 79	
Templeton,	6,168 76	
Uxbridge,	1,291 20	
Warren,	18 12	
Webster,	6 37	
West Brookfield,	16 04	
Westborough,	5 05	
Westminster,	44 45	
Winchendon,	1 09	
Worcester,	4 35	
		66,955 38
		\$440,948 26

REPAIR AND MAINTENANCE EXPENDITURES.

[Under chapters 127 and 493 of the Acts of 1909 and chapter 139 of the Acts of 1910.]

TOWN OR CITY.	PAID FROM REVENUE.		Amount.	Totals.
	Chapters 127 and 493, 1909.	Chapter 139, 1910.		
<i>Barnstable County.</i>				
Barnstable,	\$59 95	\$562 87	\$622 82	
Bourne,	21 68	657 95	679 63	
Brewster,	88 36	988 52	1,076 88	
Chatham,	39 90	456 79	496 69	
Dennis,	52 93	526 02	578 95	
Eastham,	9 22	913 75	922 97	
Falmouth,	39 61	2,520 56	2,560 17	
Harwich,	47 58	1,143 46	1,191 04	
Orleans,	43 21	474 42	517 63	
Provincetown,	7 00	85 96	92 96	
Sandwich,	42 58	1,426 93	1,469 51	
Truro,	20 02	306 04	326 06	
Wellfleet,	45 29	482 47	527 76	
Yarmouth (north),	37 44	410 63	448 07	
Yarmouth (south),	45 17	417 73	462 90	
	\$599 94	\$11,374 10	\$11,974 04	\$11,974 04
<i>Berkshire County.</i>				
Adams,	—	\$223 87	\$223 87	
Becket,	—	1,388 77	1,388 77	
Cheshire,	—	2,005 62	2,005 62	
Clarksburg,	—	984 68	984 68	
Dalton,	—	772 65	772 65	
Great Barrington,	—	721 19	721 19	
Hancock,	—	1,293 66	1,293 66	
Hinsdale,	—	159 86	159 86	
Lee,	\$3 59	1,537 26	1,540 85	
Lenox,	—	4,146 43	4,146 43	
North Adams,	—	1,390 54	1,390 54	
Pittsfield,	3 25	6,682 18	6,685 43	
Richmond,	—	66 38	66 38	
Stockbridge,	9 15	1,243 95	1,253 10	
Williamstown,	—	275 34	275 34	
	\$15 99	\$22,892 38	\$22,908 37	22,908 37
<i>Bristol County.</i>				
Acushnet,	\$69 04	\$178 64	\$247 68	
Attleborough,	123 10	529 20	652 30	
Berkley,	—	16 80	16 80	
Dartmouth,	64 29	326 98	391 27	
Dighton,	65 00	322 68	387 68	
Easton,	31 62	13 60	45 22	
	\$353 05	\$1,387 90	\$1,740 95	\$34,882 41
<i>Am'ts carried for'd,</i>	\$353 05	\$1,387 90	\$1,740 95	\$34,882 41

REPAIR AND MAINTENANCE EXPENDITURES — *Continued.*

TOWN OR CITY.	PAID FROM REVENUE.		Amount.	Totals.
	Chapters 127 and 493, 1909.	Chapter 139, 1910.		
<i>Am'ts brought for'd,</i>	\$353 05	\$1,387 90	\$1,740 95	\$34,882 41
Fairhaven,	36 40	65 23	101 63	
Freetown,	121 81	440 45	562 26	
Mansfield,	—	79 95	79 95	
North Attleborough,	207 70	348 99	556 69	
Norton,	—	69 80	69 80	
Raynham,	—	97 74	97 74	
Rehoboth,	3 16	365 82	368 98	
Seekonk,	66 00	116 65	182 65	
Somerset,	6 93	1,800 91	1,807 84	
Swansea,	29 07	510 95	540 02	
Taunton,	114 84	641 79	756 63	
Westport,	154 75	503 01	657 76	
	\$1,093 71	\$6,429 19	\$7,522 90	7,522 90
<i>Dukes County.</i>				
Chilmark,	—	\$176 20	\$176 20	
Edgartown,	\$72 12	299 09	371 21	
Oak Bluffs,	103 26	146 22	249 48	
Tisbury,	10 04	137 65	147 69	
	\$185 42	\$759 16	\$944 58	944 58
<i>Essex County.</i>				
Amesbury,	\$45 50	\$410 44	\$455 94	
Andover,	41 52	469 42	510 94	
Beverly,	95 01	978 54	1,073 55	
Essex,	—	322 44	322 44	
Gloucester,	—	523 83	523 83	
Groveland,	—	511 51	511 51	
Hamilton,	230 34	243 12	473 46	
Haverhill,	—	496 36	496 36	
Ipswich,	—	272 88	272 88	
Lawrence,	—	140 39	140 39	
Lynn,	19 15	3,055 80	3,074 95	
Merrimac,	18 87	282 61	301 48	
Methuen,	48 00	173 78	221 78	
Newbury,	12 50	2,478 88	2,491 38	
Newburyport,	38 55	224 75	263 30	
North Andover,	62 00	557 57	619 57	
Rockport,	—	153 72	153 72	
Rowley,	—	1,179 63	1,179 63	
Salem,	—	580 81	580 81	
Salisbury,	6 56	476 08	482 64	
Saugus,	220 73	199 42	420 15	
<i>Am'ts carried for'd,</i>	\$838 73	\$13,731 98	\$14,570 71	\$43,349 89

REPAIR AND MAINTENANCE EXPENDITURES — *Continued.*

TOWN OR CITY.	PAID FROM REVENUE.		Amount.	Totals.
	Chapters 127 and 493, 1909.	Chapter 139, 1910.		
<i>Am'ts brought for'd,</i>	\$838 73	\$13,731 98	\$14,570 71	\$43,349 89
Swampscott,	19 50	695 64	715 14	
Wenham,	68 54	853 67	922 21	
West Newbury, . . .	—	883 70	883 70	
	\$926 77	\$16,164 99	\$17,091 76	17,091 76
<i>Franklin County.</i>				
Ashfield,	—	\$63 48	\$63 48	
Buckland,	\$27 00	808 49	835 49	
Charlemont,	2 60	101 04	103 64	
Colrain,	3 04	229 75	232 79	
Deerfield,	43 62	1,609 44	1,653 06	
Erving,	7 20	329 96	337 16	
Greenfield,	—	523 29	523 29	
Montague,	—	371 68	371 68	
Northfield,	—	531 57	531 57	
Orange,	9 46	684 39	693 85	
Shelburne,	—	780 11	780 11	
Sunderland,	6 30	99 67	105 97	
Whately,	1 50	240 55	242 05	
	\$100 72	\$6,373 42	\$6,474 14	6,474 14
<i>Hampden County.</i>				
Agawam,	—	\$170 84	\$170 84	
Brimfield,	\$11 25	251 95	263 20	
Chester,	—	1,028 15	1,028 15	
Chicopee,	178 68	1,582 08	1,760 76	
East Longmeadow, . .	—	105 00	105 00	
Holyoke,	—	19 82	19 82	
Monson,	31 95	139 76	171 71	
Palmer,	343 85	2,250 88	2,594 73	
Russell,	5 13	2,442 15	2,447 28	
Wales,	—	144 71	144 71	
West Springfield, . .	—	622 63	622 63	
Westfield,	—	849 52	849 52	
Wilbraham,	74 97	1,169 85	1,244 82	
	\$645 83	\$10,777 34	\$11,423 17	11,423 17
<i>Hampshire County.</i>				
Amherst,	\$11 60	\$206 30	\$217 90	
Belchertown,	12 86	120 81	133 67	
Easthampton,	—	516 07	516 07	
Goshen,	—	59 43	59 43	
Granby,	—	618 12	618 12	
<i>Am'ts carried for'd,</i>	\$24 46	\$1,520 73	\$1,545 19	\$78,338 96

REPAIR AND MAINTENANCE EXPENDITURES — *Continued.*

TOWN OR CITY.	PAID FROM REVENUE.		Amount.	Totals.
	Chapters 127 and 493, 1909.	Chapter 139, 1910.		
<i>Am'ts brought for'd,</i>	\$24 46	\$1,520 73	\$1,545 19	\$78,338 96
Hadley,	11 52	4,192 97	4,204 49	
Hatfield,	—	156 37	156 37	
Huntington,	—	443 11	443 11	
Northampton,	—	666 79	666 79	
South Hadley,	15 45	1,195 80	1,211 25	
Southampton,	—	165 30	165 30	
Ware,	—	500 78	500 78	
Williamsburg,	—	172 11	172 11	
	\$51 43	\$9,013 96	\$9,065 39	9,065 39
<i>Middlesex County.</i>				
Acton,	—	\$681 30	\$681 30	
Ashby,	—	192 53	192 53	
Ashland,	\$16 63	33 56	50 19	
Bedford,	—	136 21	136 21	
Billerica,	—	185 69	185 69	
Boxborough,	—	387 60	387 60	
Burlington,	—	543 56	543 56	
Chelmsford,	52 75	569 65	622 40	
Concord,	—	552 72	552 72	
Dracut,	74 52	262 77	337 29	
Framingham,	24 75	365 68	390 43	
Groton,	—	98 75	98 75	
Holliston,	76 45	159 70	236 15	
Hudson,	34 87	65 03	99 90	
Lexington,	—	499 25	499 25	
Lincoln,	—	366 07	366 07	
Littleton,	—	671 40	671 40	
Lowell (north),	—	230 46	230 46	
Lowell (south),	—	320 04	320 04	
Marlborough,	—	1,707 84	1,707 84	
Medford,	—	75 83	75 83	
Melrose,	55 58	30 25	85 83	
Natick,	10 69	1,256 21	1,266 90	
Newton,	—	36 25	36 25	
North Reading,	—	185 12	185 12	
Reading,	40 06	291 82	331 88	
Stoneham,	56 40	405 77	462 17	
Somerville,	—	651 98	651 98	
Sudbury,	88 00	877 87	965 87	
Tewksbury,	88 88	503 78	592 66	
Townsend,	10 56	402 94	413 50	
Tyngsborough,	27 06	1,596 62	1,623 68	
<i>Amt's carried for'd,</i>	\$657 20	\$14,344 25	\$15,001 45	\$87,404 35

REPAIR AND MAINTENANCE EXPENDITURES — *Continued.*

TOWN OR CITY.	PAID FROM REVENUE.		Amount.	Totals.
	Chapters 127 and 493, 1909.	Chapter 139, 1910.		
<i>Am'ts brought for'd,</i> .	\$657 20	\$14,344 25	\$15,001 45	\$87,404 35
Watertown,	—	345 54	345 54	
Wayland,	9 00	498 26	507 26	
Westford,	—	509 71	509 71	
Weston,	—	812 98	812 98	
Wilmington,	—	93 60	93 60	
Winchester,	—	656 40	656 40	
Woburn,	—	433 42	433 42	
	\$666 20	\$17,694 16	\$18,360 36	18,360 36
<i>Nantucket County.</i>				
Nantucket,	—	\$479 56	\$479 56	479 56
<i>Norfolk County.</i>				
Bellingham,	\$5 00	\$407 32	\$412 32	
Braintree,	76 75	111 73	188 48	
Canton,	—	1,900 74	1,900 74	
Cohasset,	54 81	2,020 29	2,075 10	
Dedham,	—	3 84	3 84	
Dover,	—	302 39	302 39	
Foxborough,	66 50	122 82	189 32	
Franklin,	5 50	216 20	221 70	
Holbrook,	31 25	94 56	125 81	
Milton,	62 00	271 12	333 12	
Needham,	120 00	391 44	511 44	
Norfolk,	34 48	580 24	614 72	
Norwood,	8 06	2,028 61	2,036 67	
Plainville,	—	201 79	201 79	
Quincy,	46 88	336 01	382 89	
Randolph,	37 50	414 88	452 38	
Sharon,	—	42 78	42 78	
Stoughton,	—	1,896 96	1,896 96	
Walpole,	95 70	3,201 05	3,296 75	
Wellesley,	4 23	2,015 34	2,019 57	
Westwood,	42 69	80 65	123 34	
Weymouth,	69 24	4,092 12	4,161 36	
Wrentham,	23 05	1,899 25	1,922 30	
	\$783 64	\$22,632 13	\$23,415 77	23,415 77
<i>Plymouth County.</i>				
Abington,	\$69 75	\$191 98	\$261 73	
Bridgewater,	1 27	2,425 58	2,426 85	
Brockton,	117 47	572 89	690 36	
Duxbury,	81 91	2,407 11	2,489 02	
<i>Am'ts carried for'd,</i> .	\$270 40	\$5,597 56	\$5,867 96	\$129,660 04

REPAIR AND MAINTENANCE EXPENDITURES — *Continued.*

TOWN OR CITY.	PAID FROM REVENUE.		Amount.	Totals.
	Chapters 127 and 493, 1909.	Chapter 139, 1910.		
<i>Am'ts brought for'd, .</i>	\$270 40	\$5,597 56	\$5,867 96	\$129,660 04
Hanover,	455 67	133 97	589 64	
Hingham,	60 03	2,864 83	2,924 86	
Kingston,	11 63	196 97	208 60	
Lakeville,	—	418 76	418 76	
Marion,	151 16	1,293 50	1,444 66	
Marshfield,	9 50	1,924 55	1,934 05	
Mattapoisett,	66 62	979 50	1,046 12	
Middleborough,	527 79	2,649 63	3,177 42	
Pembroke,	31 38	77 24	108 62	
Plymouth,	—	1,633 70	1,633 70	
Rochester,	—	336 72	336 72	
Rockland,	44 50	153 07	197 57	
Scituate,	—	3,805 88	3,805 88	
Wareham,	—	3,241 26	3,241 26	
West Bridgewater,	—	2,993 82	2,993 82	
Whitman,	39 75	1,348 86	1,388 61	
	\$1,668 43	\$29,649 82	\$31,318 25	31,318 25
<i>Suffolk County.</i>				
Boston,	—	\$870 89	\$870 89	
Chelsea,	\$10 05	231 71	241 76	
Revere (east),	12 25	259 29	271 54	
Revere (west),	—	84 36	84 36	
	\$22 30	\$1,446 25	\$1,468 55	1,468 55
<i>Worcester County.</i>				
Athol,	\$19 92	\$385 64	\$405 56	
Auburn,	—	7,113 33	7,113 33	
Barre,	—	7,473 86	7,473 86	
Blackstone,	—	505 69	505 69	
Brookfield,	92 36	3,417 44	3,509 80	
Charlton,	—	463 21	463 21	
Douglas,	—	132 65	132 65	
Dudley,	—	381 88	381 88	
Fitchburg,	23 68	441 33	465 01	
Gardner,	60 13	428 04	488 17	
Grafton,	37 13	397 34	434 47	
Hardwick,	—	109 48	109 48	
Harvard,	14 38	193 88	208 26	
Holden,	53 29	600 93	654 22	
Lancaster,	—	279 51	279 51	
Leicester,	—	5,056 76	5,056 76	
Leominster,	13 19	397 68	410 87	
<i>Am'ts carried for'd, .</i>	\$314 08	\$27,778 65	\$28,092 73	\$162,446 84

REPAIR AND MAINTENANCE EXPENDITURES — *Concluded.*

TOWN OR CITY.	PAID FROM REVENUE.		Amount.	Totals.
	Chapters 127 and 493, 1909.	Chapter 139, 1910.		
<i>Am'ts brought for'd,</i> .	\$314 08	\$27,778 65	\$28,092 73	\$162,446 84
Lunenburg,	43 71	480 56	524 27	
Milford,	—	424 39	424 39	
Millbury,	53 23	451 62	504 85	
New Braintree,	—	6 36	6 36	
North Brookfield,	—	128 70	128 70	
Northborough,	88 45	413 58	502 03	
Oxford,	—	175 03	175 03	
Paxton,	15 70	4,925 58	4,941 28	
Phillipston,	49 40	179 08	228 48	
Princeton,	—	168 27	168 27	
Rutland,	—	179 54	179 54	
Shrewsbury,	—	781 73	781 73	
Southborough,	16 08	613 71	629 79	
Southbridge,	57 55	209 93	267 48	
Spencer,	11 48	1,610 40	1,621 88	
Sterling,	75	521 33	522 08	
Sturbridge,	193 44	280 94	474 38	
Sutton,	—	299 43	299 43	
Templeton,	58 44	590 70	649 14	
Uxbridge,	—	326 24	326 24	
Warren,	140 42	5,316 98	5,457 40	
Webster,	—	141 85	141 85	
Westborough,	45 40	347 59	392 99	
West Boylston,	57 10	275 15	332 25	
West Brookfield,	77 11	1,199 85	1,276 96	
Westminster,	30 94	594 61	625 55	
Winchendon,	75 57	27 79	103 36	
Worcester,	97 16	2,239 01	2,336 17	
	\$1,426 01	\$50,688 60	\$52,114 61	52,114 61
Total,				\$214,561 45

EXPENDITURES FOR REPAIRS OF STATE HIGHWAYS.

Motor Vehicle Fees Fund.

[Under Chapter 642, Acts of 1908.]

Acton,	\$3,112 68
Agawam,	521 00
Amesbury,	18 40
Amherst,	1,530 74
Andover,	2,298 94
Attleborough,	1,603 15
Auburn,	1,601 16
Barre,	15 04
Becket,	8,943 30
Bellingham,	50 00
Beverly,	9,987 41
Billerica,	316 38
Blackstone,	24 81
Bourne,	3,640 16
Bridgewater,	50 14
Brimfield,	5,822 49
Brockton,	4 25
Brookfield,	69 73
Buckland,	4,361 48
Burlington,	2,137 75
Canton,	19 80
Chelsea,	8 25
Chicopee,	936 67
Cohasset,	360 65
Concord,	2,322 82
Dartmouth,	1,922 05
Deerfield,	1,817 64
Dighton,	1,756 83
Douglas,	2,091 30
Duxbury,	9 50
Easthampton,	3,659 80
Edgartown,	1 30
Erving,	57 44
Essex,	177 64
Falmouth,	14 32
Gardner,	179 45
Gloucester,	5,077 34
Groveland,	1,743 64

Amount carried forward, \$68,265 45

<i>Amount brought forward,</i>		\$68,265 45
Hadley,		4,646 92
Hamilton,		793 44
Haverhill,		2,173 24
Holden,		1,017 34
Holyoke,		1,984 45
Ipswich,		541 10
Lawrence,		32 19
Lincoln,		1,394 30
Littleton,		425 63
Lee,		501 07
Leicester,		5,431 61
Lenox,		5 00
Lexington,		2,416 63
Lynn,		3,915 46
Lowell,		19 52
Marion,		205 78
Marlborough,		4,085 90
Marshfield,		60 17
Mattapoisett,		9 00
Medford,		664 48
Methuen,		2,883 50
Merrimac,		10 06
Middleborough,		2,209 12
Millbury,		1,246 33
Montague,		9 28
Nantucket,		679 43
Natick,		4,271 22
Needham,		456 11
Newbury,		3,277 07
Newburyport,		1,844 80
Newton,		1,510 54
Norfolk,		553 75
North Adams,		566 83
Northampton,		1,068 33
North Attleborough,		3,809 40
Northborough,		1,148 40
North Reading,		4,109 96
Norwood,		1,034 83
Oak Bluffs,		1 30
Orange,		500 00
Orleans,		2 95
<i>Amount carried forward,</i>		\$129,781 89

<i>Amount brought forward,</i> . . .	\$206,912 55	
West Newbury,	3,134 60	
Weston,	3,278 68	
Westport,	3,199 22	
Westwood,	736 79	
Weymouth,	96	
Whately,	599 80	
Whitman,	3,126 33	
Wilbraham,	4,774 77	
Wilmington,	73 20	
Winchendon,	197 60	
Winchester,	2,176 90	
Woburn,	1,917 45	
Worcester,	1,552 21	
		\$231,681 06
Miscellaneous:—		
Analysis of tar and oil,	\$2,165 50	
4 motor cycles,	900 00	
Repairs on motor cycles,	24 05	
Automobile expense,	1,275 75	
2 road rollers,	5,700 00	
Road roller repairs and supplies,	646 33	
Repairs on road machinery,	525 34	
Supplies and equipment for road machinery,	588 50	
2 street sweepers,	480 00	
3 street sprinklers,	911 00	
6 portable boilers,	3,480 00	
3 tar kettles,	200 00	
6 running gears for tank wagons,	1,095 00	
8 tanks for wagons,	1,205 80	
Tank wagon,	425 00	
2 tar and oil distributors,	300 00	
Wagon gears,	232 28	
6 steam pumps,	630 00	
Hand pump,	47 25	
2 sand dryers,	60 00	
Road drag,	14 00	
Concrete mixer,	650 00	
Truck,	65 00	
3 canvas tents,	96 00	
Movable tool house,	140 53	
<i>Amounts carried forward,</i>	\$21,857 33	\$231,681 06

<i>Amounts brought forward,</i>	\$21,857 33	\$231,681 06
Wheeled tool cart,	85 00	
Tools and equipment for repair crews,	688 83	
Supplies for laborers' shelter,	4 60	
Freight and express on tools and wagons,	95 03	
Advertising,	63	
Boiler inspection,	15 00	
Thermometers,	70 64	
	<hr/>	22,817 06
Cost of engineering, . . . . .	. . . . .	35,000 00
Traffic census, . . . . .	. . . . .	1 30

Repair and maintenance of town and
county ways (chapter 525, Acts of
1910):—

Amherst,	\$181 73	
Cohasset,	100 62	
Cummington,	2,076 86	
East Longmeadow,	655 58	
Goshen,	2,096 09	
Greenfield,	227 06	
Ipswich,	300 00	
Becket,	428 46	
Maynard,	172 37	
Peabody,	299 89	
Saugus,	3,025 29	
Topsfield,	373 75	
Truro,	2,085 36	
Wellfleet,	681 83	
Wendell,	250 00	
Windsor,	1,172 72	
	<hr/>	14,127 61
		<hr/>
		\$303,627 03

EXPENDITURES UNDER "SMALL TOWN" ACTS.

[Chapter 47, Revised Laws, and Chapter 279, Acts of 1908.]

Abington,	\$2,576 80
Alford,	706 80
Amherst,	1,900 00
Ashburnham (two allotments),	1,600 00
Avon,	400 00
	<hr/>
<i>Amount carried forward,</i>	\$7,183 60

<i>Amount brought forward,</i>	\$7,183 60
Ayer,	100 00
Becket,	531 92
Berlin,	400 00
Billerica,	2,500 00
Bolton,	550 00
Boxford,	50 00
Boylston,	800 00
Burlington,	71 60
Carver,	285 00
Charlemont,	243 25
Chesterfield,	424 57
Cummington,	551 10
Dana,	1,600 00
Danvers,	845 00
Dunstable,	380 00
Eastham,	476 81
Easthampton,	43 20
Egremont,	550 00
Enfield,	1,650 00
Florida (two allotments),	600 00
Georgetown,	310 00
Gill,	500 00
Greenwich (two allotments),	700 00
Halifax (two allotments),	1,475 00
Hanson,	1,000 00
Hampden,	390 00
Hawley,	250 00
Heath,	400 00
Hinsdale,	1,000 00
Huntington,	768 08
Leverett,	250 00
Littleton,	100 00
Marblehead,	247 05
Mashpee (three allotments),	1,200 00
Medway,	10 00
Middleton,	400 00
Millis,	1,000 00
Monroe (three allotments),	1,400 00
Monterey,	600 00
Montgomery,	400 00
Mt. Washington,	400 00
<i>Amount carried forward,</i>	\$32,636 18

Amount brought forward,	\$32,636
New Braintree,	440
New Marlborough,	95
New Salem,	400
Norfolk,	750
North Reading,	3,000
Oakham,	480
Otis (two allotments),	566
Oxford,	800
Pelham,	750
Pembroke,	1,700
Pepperell,	450
Peru,	600
Petersham,	500
Plymouth,	544
Plympton,	400
Prescott (two allotments),	600
Raynham (two allotments),	3,316
Reading,	1,000
Rowe;	450
Sandisfield (three allotments),	1,740
Savoy,	518
Sheffield (two allotments),	1,448
Sherborn,	400
Shirley,	1,000
Southampton,	41
Southwick (two allotments),	1,165
Stow,	615
Tolland,	600
Tyringham,	491
Washington,	490
Wendell,	550
Westport,	3,220
West Stockbridge (two allotments),	1,040
Williamsburg,	500
Windsor,	500
Worthington,	786
Total,	\$64,584

GENERAL EXPENSES, DEC. 1, 1909, TO NOV. 30, 1910.

[Under Chapter 127, Acts of 1909.]

Travel of commissioners,	\$127 95
Printing,	18 92
Office and typewriter supplies,	5 60
Telephone, including tolls,	51 90
Advertising hearings,	4 50
Repairs to steam road rollers,	158 35
Miscellaneous items,	47 31
	<hr/>
	\$414 33

[Under Chapter 139, Acts of 1910.]

Salaries of commissioners,	\$8,500 00
Travel of commissioners,	2,889 56
Salaries of clerical assistants and first and second engineers,	18,110 62
Rent of offices,	4,750 00
Printing and binding annual report,	1,344 25
Printing,	1,282 29
Office and typewriter supplies,	549 26
Telephone, including tolls,	579 07
Postage, including postal cards and envelopes,	1,169 51
Recording land takings and easements,	211 26
Advertising hearings,	107 92
Travel and expense of chief engineer,	389 81
Typewriters,	223 50
Repairs to steam road rollers,	2,999 87
Miscellaneous items, including express charges, car fares, telegrams and other minor office expenses,	612 55
	<hr/>
	\$43,719 47

MOTOR VEHICLE FEES FUND.

[Under Chapter 580, Acts of 1907, and Chapter 642, Acts of 1908.]

Salaries of clerks and clerical assistance,	\$29,741 35
Number plates for registering automobiles,	13,152 41
Badges for professional chauffeurs,	905 20
Office and typewriter supplies,	1,278 65
Printing,	3,757 55
Speed signs and sign boards,	175 00
Rent of offices,	2,589 00
Cartage and storage of number plates,	434 37
	<hr/>

Amount carried forward, \$52,033 53

<i>Amount brought forward,</i>	\$52,033 53
Postage, including postal cards and envelopes,	3,434 52
Typewriters,	650 65
Typewriter rental,	185 79
Examination of professional chauffeurs, including salaries, expenses and mileage purchased,	13,025 09
Miscellaneous items, including express charges, car fares, telegrams and other minor office expenses,	462 67
	<hr/>
	\$69,792 25
Rebates of automobile fees,	2,836 25

EXPENSES CONNECTED WITH TELEPHONE AND TELEGRAPH SUPERVISION.

[Under Chapter 20, Acts of 1910.]

Salaries of commissioners,	\$4,500 00
Salaries of clerical assistants,	2,000 00
Printing,	876 87
Miscellaneous items,	31 50
	<hr/>
	\$7,408 37

[Under Chapter 632, Acts of 1908, and Chapter 78, Resolves 1909.]

Expenses in connection with an inventory and appraisal of the property of the New England Telephone and Telegraph Company,	\$11,049 54
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MISCELLANEOUS EXPENDITURES.

[Under Chapter 574, Acts of 1907.]

Expenditures for the laying out and construction, as a State highway, of Washington Street in the West Roxbury district of the city of Boston,	\$133 00
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[Under Chapter 616, Acts of 1908.]

Expenditures for certain State highways in the county of Berkshire, town of Becket,	\$8,753 47
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[Under Chapter 511, Acts of 1909.]

Expenditures for the improvement of a highway in the county of Berkshire, towns of Becket and Lee,	\$9,789 42
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[Under Chapter 136, Resolves of 1909.]

Expenditures for the repair of the bridge over Parker River in the town of Newbury, and for an examination of certain other large bridges,	\$18,007 62
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[Under Chapter 578, Acts of 1910.]

Expenditures for the construction of a breakwater or
causeway in the town of Marblehead, . . . \$28,871 02

[Under Chapter 574, Acts of 1910.]

Expenditures for the construction of a bridge over the
west branch of the Westfield River, in the town of
Chester, . . . \$12,330 85

[Under Chapter 646, Acts of 1910.]

Expenditures in connection with making certain pur-
chases and takings of land in the town of Revere, . . \$76 08

SUMMARY OF EXPENDITURES.

For construction,	\$440,948 26
For road repair and maintenance, from revenue, . . .	214,561 45
For road repair and maintenance (motor vehicle fees fund),	303,627 03
For construction under "small town" acts, . . .	64,584 86
For general expense under chapter 127, Acts of 1909, .	44,133 80
For general expense under chapter 139, Acts of 1910, .	69,792 25
For expenditures connected with automobile registration, .	
For rebates of automobile fees, under chapter 534, Acts of 1909,	2,836 25
For telephone and telegraph supervision, under chapter 20, Acts of 1910,	7,408 37
For expenditures under chapter 632, Acts of 1908, and chapter 78, Resolves of 1909,	11,049 54
For expenditures under chapter 136, Resolves of 1909, .	18,007 62
For expenditures under chapter 616, Acts of 1908, .	8,753 47
For expenditures under chapter 511, Acts of 1909, .	9,789 42
For expenditures under chapter 574, Acts of 1908, .	133 00
For expenditures under chapter 578, Acts of 1910, .	28,871 02
For expenditures under chapter 574, Acts of 1910, .	12,330 85
For expenditures under chapter 646, Acts of 1910, .	76 08
	<hr/>
	\$1,236,903 27

HAROLD PARKER,
WM. D. SOHIER,
F. D. KEMP,
Massachusetts Highway Commission.

APPENDIX A.

REPORT OF CHIEF ENGINEER.

To the Massachusetts Highway Commission.

GENTLEMEN:— I respectfully submit the following report concerning the work done by the engineering department during the year ending Nov. 30, 1910.

Upon assuming the duties of chief engineer, on January 1, I found the engineering forces well organized, the State being divided into five divisions, each being under the supervision of a division engineer, each division engineer reporting through the secretary directly to the commission. Under that arrangement each division engineer appeared to be working out the problems in his division independently, and, although the results obtained were excellent, there was still a lack of uniformity in methods.

Surveys, plans and investigations for contemplated work were made by the office force of the surveying department, and were then referred to the division engineers for their investigation and recommendations. These recommendations were then forwarded to the secretary, and where the division engineer's recommendations did not correspond with the reports made by the surveying department, a decision as to whose opinion should be upheld was made by the secretary or by the Board, oftentimes without consultation with the division engineers.

In the last few years the secretary, with his manifold other duties, could not keep in touch with and have immediate direction over the work of both the engineers in the field and in the office. Under the present organization, however, with the engineers in the field and in the office under the direction of the chief engineer, it is possible to co-ordinate the work of the field and office forces, and to make intelligent decisions where the field and office forces are not agreed in matters pertaining to methods and necessities in construction, thereby creating uniformity and better system in the work, both of the division engineers and the office forces.

SURVEYS, ESTIMATES AND DESIGNS.

During the year preliminary surveys and estimates were made on contemplated State highways in 31 towns, covering an aggregate distance of 44.57 miles. Lines and grades for construction work on State highways have been given in 51 towns, covering an aggregate distance of 58.11 miles, some of this work having been done on roads upon which construction was commenced in 1909, and remained unfinished at the end of the season's work in that year. Final surveys and measurements were made on contemplated State highways in 43 towns, covering an aggregate distance of 47.87 miles. On "small town" work, so called, preliminary surveys, including plans and profiles, were made in 53 towns, covering an aggregate distance of 34.8 miles. In addition to the above, surveys have been made of roads to be constructed by towns, covering an aggregate of about 11 miles.

In connection with the above work, plans, profiles and cross-sections of State roads have been prepared, covering an aggregate of 54.76 miles, distributed in 33 towns. Lay-out plans have been made of roads in 49 towns, covering an aggregate distance of 52.79 miles. Plans to accompany decrees for street railway locations on State highways have been made in 12 towns.

The above does not include preliminary and final estimates and other routine work. Cursory examinations have been made of suggested routes for changes of location of highways, particularly in the westerly part of the State, in order to gain information for future action by your Board in designating routes or sections of highways to be improved.

The surveys are in charge of the first and second assistant engineers, as is also the work of designing bridges and culverts constructed or proposed by your Board. All of the bridges built during the year have been of reinforced concrete, it having become a recognized fact that properly designed bridges of this type are economical for all small spans where the entire bridge (superstructure and abutments) must be constructed or reconstructed.

The following is a list of bridges built during the year, not including those built under special acts of the Legislature, of which mention is made later in this report:—

Ashby, over Trap Falls Brook, a reinforced concrete beam bridge, span of 13 feet.

Chester, over Sanderson Brook, a reinforced concrete beam bridge, span of 30 feet.

Greenfield, over a branch of Green River, a reinforced concrete beam bridge, span of 12 feet.

Hatfield, over Mill River, a reinforced concrete beam bridge on foundation of piles, span of 30 feet.

Pepperell, over an overflow from the Nashua River, slabs of reinforced concrete and a concrete pier, two spans of 12 feet, 7 inches, each.

Ware, over Flat Brook, a reinforced concrete beam bridge, span of 16 feet, 7 inches.

Designs and estimates have also been made for contemplated bridges, or bridges to be built by towns, as follows:—

Dover-Needham, design for a reinforced concrete beam bridge, with concrete pier, over the Charles River, two spans of 32 feet, 9 inches, each.

Easthampton, design for a reinforced concrete arch bridge, over the tracks of the Easthampton branch of the Boston & Maine Railroad, near the Northampton boundary line, span of 45 feet. This bridge is proposed for the elimination of the present grade crossing.

Pembroke, design made at the request of the selectmen, for a reinforced concrete slab bridge, over Pudding Brook, span of 8 feet.

Spencer, design for a reinforced concrete arch over Seven Mile River, span of 42 feet.

Sterling, design made at the request of the selectmen, for a reinforced concrete beam bridge over the Stillwater River, span of 30 feet.

STATE HIGHWAYS.

Construction has been completed of 10.50 miles on contracts that were pending at the beginning of the year, and construction has also been completed of 44 miles of roads in 48 cities and towns on lay-outs made during the present year, making a total of 54.5 miles of construction completed during the year.

Construction has been commenced but not completed on 9 miles of road on lay-outs of this year in 19 towns. Of the above roads completed this year, 18 miles were of water-bound macadam; 6 miles were of gravel; 6.75 miles were of sand bound with oil; 2.50 miles were of bituminous macadam, that is, macadam with bituminous binder incorporated in the top course; 6.50 miles were of water-bound macadam with an oil surface applied; 14.75 miles were of gravel with the top surface bound with bituminous binder.

In another part of this report are tables showing contract prices and costs of construction of the several roads; but for your information I have prepared a table showing costs per mile of preparing roadbed, and, separate therefrom, the cost of the hard-

ened surface. Under the cost of preparing roadbed is included all grading, all surface and subdrainage, culverts, bridges, paved gutters and fencing. The cost of hardened surface includes the stone, gravel, sand, binding materials and labor, and the use of tools and machinery and labor used in the construction of the surface of the road. This table includes all contracts that have been completed in 1910, and is prepared particularly to make a comparison of the costs of the different types of road surfaces in the various parts of the State, and is also intended to call particular attention to the variation in costs of grading the various roads constructed.

"SMALL TOWN" WORK.

Under the provision of the "small town" act, 27.02 miles of road have been constructed in 51 towns, and contracts have been made but not completed for 14.2 miles in 29 towns. The lengths, types and costs of these roads are shown in tabular form in this report.

The work done under this act appears to be very widely appreciated, and is, in my opinion, a very important feature, developing, as it does, an interest in local road building and furnishing valuable assistance and knowledge in many localities where such knowledge would not otherwise be acquired.

WORK UNDER CHAPTER 525, ACTS OF 1910.

From the appropriations made for State highways and "small town" work, only permanent highways have been constructed. Under authority of chapter 525 of the Acts of 1910, however, which provided that 20 per cent. of the amount available from the motor vehicle fee fund might be allotted for improvement of roads in towns making application therefor, much work has been done of such character that it constitutes a vast improvement on many important ways throughout the Commonwealth, but would be inconsistent with the policy of your Board in the expenditure of money under any other existing law.

A statement of the number of miles actually worked upon or projected does not adequately represent the improvement that has been and will be made under this act. In several instances on roads used for a long haul, so to speak, there was lack of uniformity in the condition of the surface of the road. For example, on the main thoroughfare leading through the towns of Truro and Wellfleet there were long sections of good road suitable for the traffic; but the continuity of these sections was broken here and

there by short sections of road over which it was almost impossible to draw an ordinary load or to pass over with a motor vehicle. With the allotments made by your Board for the improvement of these bad sections the entire road through these towns will, upon completion of the work early next season, be in very fair condition and suitable for travel thereon.

Another main line of travel that has been greatly improved is the Newburyport Turnpike, so called. Many places on this road were almost impassable at times, portions on account of poor drainage, other portions on account of being badly rutted or uneven or stony, and many portions being so narrow that two teams could not conveniently pass. The work on this road, while it has not by any means produced what would be called a good road as compared with State roads, has nevertheless improved it greatly; and if some additional expenditure might be made early in the coming season, this road, instead of being necessarily shunned by the traveling public, would be in a very fair condition for travel.

Another road which has been improved under allotments made under this act is that between Northampton and Pittsfield, by way of Goshen, Cummington and Windsor. In past seasons a few short sections of State highway have been laid out and built on this route, and there has also been some work done under the "small town" act; but several miles of the route passed through thinly settled territory, in towns that could not maintain their roads as they should be maintained. In addition to the "small town" work that has been done on this route this year, allotments under chapter 525 have been made for the improvement in 5 towns, and the improvements being made on the worst sections of the road have thereby raised the general character of the entire route. Work on this road under the 1910 allotments has not yet been completed, but will be as soon as conditions will permit early next spring.

TOWN WORK SUPERVISION.

One feature of the work of the engineers that has received but slight notice is the advice and general supervision given on work that is done entirely at the expense of the towns and counties in the State. This advice and supervision enables municipal and county officers to secure better results, and is, like the work done under the "small town" act, of educational value to local officials. No record of the actual expense to the commission of such advice and assistance has been kept. The value of the work carried out or projected under this advice and supervision during the year, however, is approximately \$185,000.

While requests for advice and assistance should be granted in every case, I believe that where the granting of such advice and assistance involves the making of extensive surveys, or the constant time of a resident engineer for several weeks, the expense of such surveys and of supervision should be borne by the municipality deriving benefit therefrom.

MAINTENANCE OF STATE HIGHWAYS.

Before the advent of the motor vehicle, maintenance of State highways was of minor importance as compared with the construction thereof, but with the rapid annual increase in the number of such vehicles, maintenance has become a far greater problem.

Very few of our roads of the ordinary water-bound or of the gravel type will stand up many days under the traffic to which they are now subjected. Some of the roads built of local stone or other material that will in itself furnish a satisfactory binder, are still maintained by keeping their surfaces covered with sand; but these roads are constantly deteriorating, even where the motor vehicle traffic is comparatively light.

Some macadam roads built several years ago before the advent of the motor vehicle are still maintained with sand and remain in fair condition, while roads that are recently built rapidly deteriorate. This difference in the action of these roads under traffic is not due to poorer methods or materials of construction, but can rather be attributed to the fact that, having been constructed several years before being subjected to the destructive influence of motor traffic, the material in the road surface has become cemented together, making it somewhat monolithic. Clearly, the most effective method of maintaining macadam roads under present conditions is to use some form of bituminous binder. That which has been used to the greatest extent with economical and satisfactory results during this year has been the heavy asphaltic oil. Surface application has been made during the year, consisting of $\frac{1}{4}$ to $\frac{1}{2}$ gallon of asphaltic oil on 202.4 miles of road, and of tar on 16.9 miles. Of the above, 67.5 had previously been treated in a similar manner one or more times. In addition to the above, there are 89.2 miles that have been treated previous to this year with asphaltic oil or tar, but have received no additional treatment this year, so that at the present time a total of 308.5 miles of State highway have received one or more surface applications of asphaltic oil or tar.

In the treatment of these roads practically every bituminous material now on the market has been used, the prices paid during

1910 for the material, delivered on the cars at destination, varying from $5\frac{1}{2}$ to 13 cents per gallon.

Several conclusions have been reached, the principal of which is that, if the preservation of the wearing surface is considered paramount to the prevention of dust, a heavy bituminous material requiring heating before application is desirable.

Second, no bituminous material containing a large percentage of asphalt will adhere to a macadam road unless all dust and dirt is thoroughly removed from the same before applying the oil; and, furthermore, it is preferable that the stone surface be not extremely dry, but rather moist.

Third, better and more permanent results are obtained by the application of two coatings of $\frac{1}{4}$ gallon to the square yard than by one coating of $\frac{1}{2}$ gallon to the square yard, allowing a few days to elapse after the first application before the application of the second coat.

Fourth, the distribution of the bituminous material under pressure on the surface of the road is preferable to allowing it to flow by gravity, as the application under pressure accomplishes a far more uniform distribution. It does not, however, increase the penetration to an appreciable extent.

The process of applying bituminous material as a surface treatment on a macadam road is as follows. The road is first thoroughly swept, so that there are no particles or patches of dust or dirt covering the upper course of stone. All depressions are then filled by applying preferably $\frac{3}{4}$ -inch stone, bound with the bituminous binder that is to be used for the surface coating. The bituminous binder is then applied, heated to a temperature of approximately 180° , and distributed under pressure of approximately 75 pounds to the square inch, using $\frac{1}{4}$ to $\frac{1}{2}$ gallon per square yard. This is immediately covered with coarse sand, fine gravel or pea stone, and, if convenient, is rolled with a steam roller. In the application of the oil it is the universal custom to apply the oil on one side of the road at a time, leaving the other side clear for traffic until the first side treated has been covered with sand. Following are the specifications under which a large portion of the oil used this year has been furnished:—

The oil shall be of uniform color, appearance, general character and viscosity, and must fulfill the following requirements:—

- (a) It shall not froth when heated to 100°C .
- (b) It shall have a specific gravity of at least 0.97.
- (c) It shall not contain more than 0.5 per cent. of dirt or adventitious mineral matter.

(d) It shall contain not more than 1 per cent. of matter insoluble in carbon bisulphide.

(e) It shall be of such viscosity that 60 c.c. measured at room temperature (78°F. or 25°C.) shall when at 100°C. be not less than 250 seconds nor more than 500 seconds in passing the Lawrence viscosimeter, or 200 c.c. measured and tested at the same temperatures shall be not less than 900 seconds nor more than 1,800 seconds in passing the Engler viscosimeter.

(f) When 20 grams are heated in a flat-bottom dish 3 inches in diameter for twenty-one hours in a well-ventilated oven kept at a temperature of 250°C., the loss in weight shall not be greater than 15 per cent.

(g) When subjected to a number of heatings at 250°C. in a well-ventilated oven, with intermediate separations of asphaltene and matter insoluble in carbon bisulphide, until the final petroleum ether extract is not more than 10 per cent. by weight of the original sample, it shall show the following results, assuming also that this final 10 per cent. has the same composition as the 90 per cent. of the material examined: the total loss shall be not more than 35 per cent. by weight; the amount of asphaltene in the original sample shall not be greater than 6 per cent. by weight, and the amount of asphaltene formed by this treatment plus that in the original samples shall be at least 58 per cent. by weight of the original sample; the amount of matter insoluble in carbon bisulphide as a result of this treatment shall be not greater than 5 per cent.

For your information I submit below the detailed cost of oiling one road, selected because the conditions were what are found on an average road. This road was treated with about $\frac{1}{2}$ gallon of oil to the square yard, in two applications of $\frac{1}{4}$ gallon each.

	Per Sq. Yd.
Cleaning and sweeping,	\$0.0056
Patching old surface, . . . . .	.0016
Cost of oil, . . . . .	.0319
Heating oil, . . . . .	.0031
Delivering oil, . . . . .	.0038
Distributing oil, . . . . .	.0029
Furnishing sand beside road, . . . . .	.0165
Spreading sand, . . . . .	.0073
Watering, . . . . .	.0012
Rolling, . . . . .	.0002
Supervision, . . . . .	.0025
Total,	<hr/> \$0.0766

The average haul for oil on the above road was 2 miles. The sand for covering was furnished and hauled under contract, an average haul of about $2\frac{1}{2}$ miles.

Extraordinary surfacing has been done on 37.6 miles of road. The most noteworthy section of this class of work was the resurfacing of the so-called Revere-Saugus State highway, or Lynn Turnpike. A contract was let late in 1909 for resurfacing this road, but only a short section was done during that year; and early in 1910 the contract was cancelled, and resurfacing carried on by foreman and laborers in the employ of the commission. This road probably receives more varied and extensive traffic than any other State road. It was constructed of ordinary water-bound macadam in the year 1899. In the resurfacing of this road this year a course of approximately 2 inches in thickness of crushed stone, mixed by machine with natural asphalt, fluxed to the proper consistency, was spread on the road and thoroughly rolled with steam roller. Over this course was thinly sprayed a light coating of asphalt, which was immediately covered with pea stone. The preparation of the old macadam cost \$0.089 per square yard, and the bituminous surface cost \$0.904 per square yard, making the total cost of resurfacing \$0.993. The cost of this work was increased very largely by the necessity of keeping one side of the road open for traffic while the other side was being resurfaced. This road is now in first-class condition, and should remain so for several years with but very little expenditure for maintenance.

In connection with bituminous work, I desire to call to your attention the cost and condition of sand and oil roads built during this and previous years, also, to the cost of maintenance of sand and oil roads that have been built for several years. Sand and oil roads built by the "building-up" method, so called, are the least expensive in construction, but do not until after a lapse of some time develop a uniformly hard wearing surface, probably due principally to inequality of the distribution and penetration of the oil, and partially to the variation in quality of the sand used. Roads built by the mixing method are more uniform in character, but invariably have a surface which, while appearing to the eye to be smooth, is somewhat rough for teams and automobiles passing over them at the ordinary speed at which such vehicles are driven. Either kind of road, however, will in the course of time, with proper treatment, become smooth and even, as has been demonstrated by the condition of the sand and oil roads built in Eastham.

The earliest sand and oil road built by your Board in Eastham

cost in 1905 for construction \$0.1692 per square yard. The subsequent expenditure up to the present time aggregates \$0.1948 per square yard, so that the road up to the present time has cost \$0.3640 per square yard, or about \$3,400 per mile (16 feet wide): and its condition has improved each year since construction, and is now excellent.

The fact that this matter is brought particularly to your attention should not be construed as advising that sand and oil roads are preferable to roads built of macadam or good gravel, but rather to show that in localities where neither stone or gravel can be found, suitable for reasonable traffic at reasonable cost, an excellent road can be secured, as has been demonstrated in the above-cited case.

Analyses have been made by the chemist of all the bituminous materials used during the season, and record made of their ingredients and qualities. The report of the chemist which will be before you will give details of the work.

PERMITS.

Six hundred and twenty-two permits have been issued during the year for opening or occupying State highways for various purposes. The time and consequent expense required in investigating requests and permits, and more particularly the making certain that the road surface that is disturbed is replaced in a thorough and satisfactory manner, is a very appreciable item in the expenditures of the Board.

TREES.

The planting and maintenance of shade trees along State highways should be continued, not only for adornment of the roads, but for their protection. While too much shade is injurious, a sufficient amount is very beneficial to the roads, particularly those that are maintained by any treatment other than oil surfacing. A report of the forester will be before you, and will give general details regarding trees on the highways.

In connection with this subject, I desire to state that in many instances the necessity of reconstruction of guard rail might be avoided by planting hedges at the same time that guard rails are first constructed. Such hedges will attain a proper growth by the time the guard rail has become useless, and replacement will then be unnecessary. Such planting cannot be done in all instances where the guard rail is required but could be done along a large percentage of guard rail now existing.

MACHINERY AND STOREHOUSE.

The commission now owns such quantity of machinery and tools that there is immediate necessity for providing storage places, where they can be gathered at the end of each season and repaired during the winter months. Experienced foremen and roller engineers must be hired during the entire year, else they will find other places of employment. During the winter months there is little for these men to do, and several of them are experienced mechanics and good machinists, and with proper facilities could, at a saving and profit to the commission, make the ordinary repairs that are required on the machinery and tools each year. The total value of such equipment now controlled by the Board is approximately \$70,000.

While a large amount of equipment has been purchased during the present year, there were previous to this year eighteen steam rollers and much other machinery and utensils that in many instances were improperly cared for, owing to the fact that the commission had no places for storing them, but was dependent upon securing storage at various points throughout the State. While the Board has already made temporary arrangements for the coming winter, I earnestly recommend that such authority as may be necessary be secured to establish at least three permanent storage places in the State, one to be in the westerly part, one in the central, and one or possibly two in the easterly part of the State. The necessity for these storage places cannot be questioned when the above facts are considered; and there would be a further saving to the commission in that, if such places were owned, it would be possible to buy such supplies as cement, oil and certain classes of tools in wholesale lots, and distribute them as needed. Each place should be near a railroad siding, and should be provided with proper machinery and equipment for repairing machinery whenever necessary.

BRIDGES BUILT UNDER SPECIAL ACTS OF THE LEGISLATURE.

The bridge over Parker River in the town of Newbury, construction of which was partially done in 1909, was completed early this season.

The bridge over Westfield River in the town of Chester, for which \$20,000 was appropriated under chapter 574 of the Acts of 1910, is now under construction. This bridge consists of a reinforced concrete arch, with concrete spandrel walls and railings,

the extreme length of span being 110 feet. The contractors have completed all concrete work on the arch, wings and spandrel walls. Filling has been placed over the arch, and the approaches have been filled to such extent that, in case the old covered wooden structure now existing near by should fail, travel could be turned over the new bridge.

MARBLEHEAD BREAKWATER.

Work on the breakwater and highway crossing Marblehead Neck, for the construction of which \$50,000 was appropriated under chapter 578 of the Acts of the Legislature of 1910, commenced early in the month of August, and has gone forward with due expedition on the part of the contractor. All the concrete in the walls on each side of the causeway has been placed, and work is now progressing on the riprap and on the construction of the road surface, and will probably be completed about May 15, 1911.

REVERE TRAFFIC ROAD.

A study of the various possible routes for a traffic road between the Point of Pines and Revere Street in Revere was commenced early in the season. In order to intelligently determine what route might be preferable for this road, I have carried out your instructions, and made a study of the conditions south of Revere Street, as a road from Point of Pines to Revere Street would not be sufficient unless continued to a point at or near the State road near Elliot Circle.

The result of the studies and surveys made showed that there were two feasible routes that could be laid out and constructed with comparative economy, one of which is on the west side of the Boston & Maine Railroad, and the other on the east side and adjoining the metropolitan parkway. The extensive nature of the work involved in making studies and surveys for this road made it impossible to get the proposed routes sufficiently determined until late in the season; hence, although the securing of rights of way has been initiated, no definite rights have yet been secured.

Respectfully submitted,

ARTHUR W. DEAN,
Chief Engineer.

Table showing Costs of Grading and Drainage, separated from Surface Costs on Roads completed in 1910.

LOCATION.	Type of Surface.	Length of Calculations (Miles).	Cost of Grading Per Mile.	Cost of Surface.	
				Per Mile.	Per Square Yard.
Agawan, 1909,	Macadam, 5-inch, trap, bituminous surface coat, . . . . .	.966	\$3,342	\$5,640	\$0.974
Ashland,	Gravel, 5-inch, bituminous surface coat,	2.497	1,961	2,012	.229
Framingham,	Macadam, 4-inch, local stone,	1.910	980	4,293	.489
Barnstable, 1909,	Macadam, 4-inch, local stone,	1.745	1,609	3,315	.376
Barnstable,	Gravel, 4-inch,	2.442	7,690	860	.098
Becket, 1909,	Macadam, 5-inch, trap, . . . . .	.812	1,449	6,000	.656
Blackstone, 1909,	Macadam, 4-inch, trap,	1.124	1,236	5,012	.570
Bourne (south),	Macadam, 5-inch, trap, bituminous binder, . . . . .	.957	1,863	7,691	.828
Chelmsford,	Gravel, 5-inch, bituminous surface coat,	1.590	-	3,242	.368
Tyngsborough,	Macadam, 5-inch, trap, . . . . .	.831	8,669	5,044	.559
Chehire,	Macadam, 5-inch, local stone,	1.382	438	3,710	.536
Chester,	Macadam, 5-inch, trap, . . . . .	.757	4,294	6,383	.725
Chilmark, 1909,	Sand and oil, mixing method,	1.104	860	4,544	.481
East Longmeadow,	Sand and oil, mixing method,	1.022	1,451	3,231	.368
Falmouth, 1909,	Gravel, 5-inch,	1.835	1,812	1,080	.117
Falmouth,	Macadam, 5-inch, trap, bituminous surface coat, . . . . .	.628	4,263	6,613	.614
Greenfield,	Macadam, 5-inch, trap, bituminous surface coat, . . . . .	.511			
Hamilton, 1909,	Macadam, 5-inch, trap, bituminous surface coat,				
Hamilton,	Macadam, 5-inch, trap, bituminous surface coat,				

Hatfield, 1909,	Macadam, 5-inch, trap,	.843	1,205	6,710	.763
Haverhill, 1907,	Macadam, 5-inch, local stone (bridge),	1.000	5,915	4,203	.477
Haverhill,	Gravel, 4½-inch,	.944	8,007	2,328	.264
Merrimac,	Macadam, 5-inch, local trap,	2.256	3,761	3,551	.403
Holyoke,	Gravel, 5-inch, bituminous surface coat,	1.366	1,372	3,389	.368
Ipswich,	Gravel, 7-inch (concrete bridge),	.883	7,000	2,813	.320
Lee, 1909-09,	Macadam, 5-inch, local stone,	1.400	-	3,182	.361
Lunenburg,	Gravel, 4½ inch,	2.936	1,784	1,547	.263
Marshfield,	Macadam, 5-inch, local stone, bituminous binder,	1.089	3,827	5,878	.667
North Andover,	Macadam, 5-inch, trap,	.424	6,535	6,038	.686
North Brookfield,	Macadam, 5-inch, local trap (masonry arch bridge),	.379	35,129	5,992	.681
Palmer, 1909,	Gravel 5-inch (concrete bridge),	.764	5,470	2,427	.251
Pepperell,	Macadam, 5-inch, local, 1,000 square yards oil and sand,	1.751	6,604	4,449	.540
Phillipston, 1909,	Sand and oil, "built up" method,	1.070	2,242	3,407	.387
Templeton, 1909,	Macadam, 5-inch, local stone,	.415	2,225	3,792	.431
Plymouth,	Gravel, 5-inch, bituminous surface coat,	2.410	2,202	2,621	.295
Quincy, 1909,	Macadam, 4½-inch, trap, bituminous surface coat,	.701	5,712	5,594	.636
Salisbury,	Macadam, 4-inch, local stone,	.224	5,035	6,394	.604
Scituate,	Gravel, 5-inch,	1.143	1,984	1,698	.193
Somerset, 1909,	Macadam, 5-inch, trap, bituminous surface coat,	.588	5,305	6,571	.747
Somerset, 1909,	Plain macadam, 4½-inch, local and trap,	.518	7,304	6,356	.621
Southborough, 1909,					
Spencer,					
Stockbridge, 1909,					

Table showing Costs of Grading and Drainage, separated from Surface Costs on Roads completed in 1910—Concluded.

LOCATION.	Type of Surface.	Length of Calculations (Miles).	Cost of Grading Per Mile.	COST OF SURFACE.	
				Per Mile.	Per Square Yard.
Sturbridge, 1909,	Macadam, 5-inch, local stone (bridge), . . . . .	.023	\$5,731	\$3,391	\$0.576
Swansea, 1909,	Macadam, 5-inch, local stone, . . . . .	.886	2,029	3,801	.432
Swansea,	Macadam, 4½-inch, local stone, bituminous surface coat, . . . . .	.685	3,492	3,872	.439
Uxbridge, 1909,	Gravel, 5-inch, . . . . .	.577	3,374	1,906	.216
Wareham, 1909,	Sand and oil, mixing method,	1.775	1,123	2,204	.280
Rochester, 1909,					
Wareham, No. 1,	Macadam, 4½-inch, trap,	1.149	2,060	6,982	.732
Wareham, No. 2,					
Ware,	Gravel, 5-inch (bridge),	1.260	3,393	2,708	.309
Wilmington,	Macadam, 5-inch, trap, bituminous binder,	-	-	-	-

APPENDIX B.

RELATING TO THE WORK OF THE AUTOMOBILE DEPARTMENT.

Statement showing the Number of Registration Certificates and Licenses to operate issued during the fiscal Year 1910, also the Fees received for the same, together with the Fees for Examinations, for Copies of Certificates of Registration and Licenses, etc., and Fines for Violation of the Automobile Law.

Certificates of registration:—

Automobiles,	31,360	\$296,320	25
Motor cycles,	3,370	6,698	50
Manufacturers or dealers,	649	19,109	50

Licenses to operate:—

Operators,	9,450 at \$2 00	18,900	00
Chauffeurs,	3,775 at 2 00	7,550	00
Operators renewals,	19,161 at 50	9,580	50
Chauffeurs renewals,	8,873 at 50	4,436	50

Examinations,	5,424 at 2 00	10,848	00
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Copies of certificates and licenses

furnished,	1,190 at 50	595	00
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Receipts from other sources, viz., interest on deposits,

forfeits, rebates on empty tar barrels, etc.,	751	69
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Amount received at the office of the commission,	\$374,789	94
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Court fines received by the Treasurer and Receiver-General,	28,510	78
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Total receipts for the year,	\$403,300	72
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REPORT OF THE EXAMINING AND INVESTIGATING DEPARTMENT.

F. I. BIELER, *Secretary, Massachusetts Highway Commission.*

DEAR SIR:—I beg to submit the following as the fourth annual report of the examining and investigating department, covering the period from Dec. 1, 1909, to Dec. 1, 1910. Statistical tables containing the data of this department are handed you herewith.

Examinations.

Regular appointments have been made for the examination of applicants for chauffeur's licenses, as in previous years, in nine cities of the Commonwealth besides Boston, and, by request, a few examinations were conducted in the city of Lawrence and town of Oak Bluffs.

The nature of the examination has remained practically the same. A series of six examination papers has been used during the year, with satisfactory results. Our experience with applicants with reference to the written part of the examination has confirmed the opinion expressed in the report of last year that it is better to lay less stress on it than on the road test.

In comparison with the statistics of last year, the following special features may be noted:—

	1909.	1910.
Total number examinations,	4,629	5,433
Total number persons examined,	3,473	4,138
Total number persons passed,	3,149	3,701
Total number failures on first examination,	1,098	1,268
Total number persons failed to receive license,	324	437
Total per cent. failed to receive a license,	9.33	10.56
Total per cent. failures on first examination,	31.61	31.50
Total number failures on road examination,	1,044	1,263
Total per cent. failed on written test, first examination,	9.93	8.60
Total per cent. failed on road test, first examination,	21.68	22.90

From these statistics it will be seen that there has been an increase in the work of the examining department. Six hundred and sixty-five more persons have been examined, and 804 more examinations have been held this year than last. The percentage of failures on the written examination has slightly decreased, while the percentage of failures in the road test has increased. Five hundred and fifty-two more persons passed their examinations this

year than last, and 113 more finally failed to receive a license. This year 10.56 per cent. failed, as against 9.33 per cent. for 1909. There were 1,263 failures in the road test, — an increase of 219. The standard for the road test has not only been kept up, but is now higher than ever before.

Twenty-eight hundred and eighty-two examinations were held in Boston, and were conducted by F. L. Austin and C. G. Hubbell; those in Brockton, New Bedford and Fall River by E. L. Blish; those in Fitchburg, Lowell and Salem by C. G. Hubbell; those in Pittsfield and Springfield by A. F. Foote; those held in Worcester and occasionally in the above-named cities by William MacConnell.

With regard to the condition of vehicles which applicants furnish on the road test, there has been considerable improvement. This improvement, we believe, has been due to the fact that the examiners have, from time to time, rejected vehicles which were inadequately equipped. Many applicants, however, still present themselves with cars with the operation of which they are not familiar, and the examiners still hope to bring about a change for the better in this matter. In many instances the licenses issued have been limited to the operation of the particular type of motor vehicle in which the applicant was examined.

On a first failure in the road test a lapse of two weeks is now required before the applicant is permitted to take a second examination; a period of thirty days is required between the second and third examinations; and three months between the third and fourth.

Investigations and Prosecutions.

A comparison of cases investigated and prosecuted in 1909 and 1910 is given below: —

	1909.	1910.
Cases investigated,	241	429
Cases prosecuted and convictions,	33	47

The department has investigated and reported on 78 deaths that have occurred in connection with motor vehicles. Of these, 77 took place within the borders of this Commonwealth, and one in the State of Vermont. This last case was investigated for the

reason that the operator was a resident of this State, and held a Massachusetts license. Of the 77 deaths in Massachusetts, 5 may be regarded as having been only indirectly connected with the operation of automobiles.

For the purposes of this department the State has been divided into four general districts, — eastern, central, western and southern.

On May 14, 1910, Ernest L. Blish of Ludlow, Mass., was appointed as inspector and examiner. From the first of June until October Mr. Blish made investigations and took charge of the examinations in the southern district. In October he was transferred to the central district, owing in part to a falling off in the number of accidents in the southern district. Mr. A. F. Foote confines his attention to the western part of the State. To Messrs. Paul H. Weinert and William MacConnell are assigned the majority of cases occurring in the eastern district.

Throughout the year it has been necessary to have the inspectors spend practically one day each week at this office, in order to attend hearings and to receive instruction in regard to their work. They have given a great deal of time to investigating complaints of a minor nature, and to reporting on the general habits of applicants for licenses who have had their licenses suspended or revoked. They have also investigated a number of cases brought to the attention of this department by the Safe Roads Automobile Association.

The sources of information on which investigations have been based have not materially changed. These sources are newspaper accounts of accidents, letters of complaint received by the commission, and accounts of accidents forwarded by the Safe Roads Automobile Association.

As the work of the inspectors and the demands upon this department increase, the need of more room is keenly felt. At times, particularly when the inspectors are in the office, the room is much overcrowded. There is a total lack of privacy for writing, dictating and for personal interviews, either with complainants, witnesses or the inspectors.

Tabulation of Accidents.

More than 2,105 clippings have been received. Of these, 489 refer to court proceedings and 1,606 to accidents. A daily record has been kept, showing all automobile accidents and collisions in a carefully analyzed tabulation. The greater part of the time of

one clerk is required to attend to this tabulation of accidents, the filing of cards and the keeping of the court records. Besides the daily record, a monthly compilation is also made.

A comparison of figures for the year 1909 with 1910 is given below: —

Deaths, Injuries, Accidents.

	1909.	1910.
Total number killed,	54	77
Total number injured,	989	963
Total number of accidents,	1,130	1,182
Total number of accidents in daytime,	826	867
Total number of accidents after dark,	304	315
Total number of accidents on country roads,	314	222
Total number of accidents on city or town streets,	816	960

It will be seen that there has been a considerable falling off in the number of injured, — 26 less this year than last; also in the number of accidents on country roads, — 92 less in 1910 than in 1909. On the other hand, there were 144 more accidents on the streets of cities and towns this year than last, only 11 more occurring after dark. Most conspicuous is the increase in the number of deaths.

Court Abstracts.

During eleven months of the year 1910, 3,706 court abstracts were received, as against 4,071 received during the twelve months of 1909. These abstracts of court records have come from 73 courts in this Commonwealth. We still experience some difficulty in obtaining abstracts from the courts. In view of the fact, however, that there are but 83 courts, not including the sittings of trial justices, holden in the State, it may be regarded as fairly satisfactory that 73 of such courts are making returns to this department. The number of inquiries for information contained in the court abstracts has been approximately the same this year as last.

*Analysis of the Abstracts of Court Records for the Period from Jan.
1, 1910, to Dec. 1, 1910.*

Number of courts that have sent abstracts,	73
Total number of abstracts received,	3,706
Persons guilty of unlawful automobiling,	3,328
Persons not guilty of unlawful automobiling,	114
Persons appealed to a higher court,	404
Complaints placed on file,	534
Complaints <i>not pressed</i> ,	112
Defendants defaulted,	44
Persons committed to imprisonment,	3
Complaints brought:—	
For overspeeding,	1,870
For reckless operating,	74
For operating while intoxicated,	35
For using automobile without authority,	24
For endangering lives and safety of the public,	10
For improper display or no register number,	77
For operating without a license,	230
For operating without carrying registration certificate,	100
For operating an unregistered motor vehicle,	76
For refusing to stop when signalled by officer,	63
For operating with unlighted lamps,	126
For violations of park rules,	513
For failing to give signal when approaching an in- tersecting way,	457
For miscellaneous offences,	219
Fines, etc., as shown by the court abstracts received:—	
For violating State statutes,	\$31,596 66
For violating metropolitan park rules,	5,073 00
For cost of court,	1,766 43

Respectfully submitted,

F. L. AUSTIN,
Chief Examiner and Inspector.

APPENDIX C.

REPORT OF FORESTER OF HIGHWAY COMMISSION.

CLINTON, Dec. 15, 1910.

To the Massachusetts Highway Commission.

GENTLEMEN:—The third consecutive summer, with precipitation below the normal amount during the growing season, has given the trees a severe test. The young trees have seemingly withstood these conditions better than the older trees, due to the fact that the former had a better food supply, while the latter, owing to the continued dryness, have suffered. These conditions will call for greater attention during the coming year in the maintenance of the older trees.

Preparation is in progress this fall for the planting of 1,356 trees next spring in Spencer, Brookfield, Palmer, Monson and Wilbraham. When this planting is finished we shall have, practically continuous shade trees from Leicester center to the Springfield line.

Trees that have been planted near piles of crushed stone have produced a more vigorous growth; consequently, in the preparation of the tree pits this fall we have used six shovels full of crushed stone dust per pit, where available, to test its value.

The preparation of the ground in the fall and planting in the following spring has proved to be a most successful method.

It has been difficult during the past year to obtain help to care for the young trees, as we depend largely on the repair men to furnish it. They have been unusually busy with the road work, so that frequently several weeks have elapsed before the orders were carried out. In recommendation for next year I suggest the advisability of employing men who shall devote their entire time to the tree work, giving them as much territory as they can conveniently cover.

This method I believe will produce far better results, and will reduce the loss very materially. Many of these failures are due to carelessness on the part of others, conditions which inevitably occur with roadside trees.

The condition of the trees at the nursery has been very satisfactory. In the spring we shall use a number of the seedling trees that have been growing for three years. The fertility of the soil has been improved by the growing of green crops and plowing them in on any unused portions, preparatory to planting trees next spring.

During the past season the forester has been called upon by the New York State Highway Commission for information relative to the tree work carried on by your commission, as they contemplate taking up that feature in connection with their road construction.

The federal government has aided us greatly by doing very efficient work in the thinning and pruning of trees in several towns where the gypsy moths are prevalent. It is possible that the State force of the Gypsy and Brown-tail Moth Commission might be of similar assistance in pruning the large trees in other places, as they have a better equipment than the repair men.

That our roadsides may become an object lesson for the other States in the Union, as our roads have, it will be necessary to give, in addition to our care of the young trees, our most careful consideration to the following, namely:—

1. The care of trees through which the wires of the various public-service corporations run.
2. The care of the older trees, many of which are reaching their maturity.
3. The conserving of the better trees mingled with the native growth by the roadside.

New trees planted in 1910,	165
Total trees planted in seven years,	13,831
Trees replaced in 1910,	811
Percentage of loss,	6
Large trees on hand in nursery,	1,313
Small trees on hand in nursery,	4,335
Total number of towns in which trees have been planted, .	59
Number of towns in which native trees have been trimmed in 1910,	44
Number of towns in which trees have been inspected in 1910, .	172

The cost of maintenance this year was \$0.23 per tree.

Respectfully submitted,

EDWARD W. BREED,
Forester.

VARIETIES AND DISTRIBUTION OF SHADE TREES PLANTED IN 1910.

Trees replaced.

	American Elm.	Norway Maple.	Sugar Maple.	White Maple.	American Ash.	English Ash.	Russian Willow.	Laurel-leaf Willow.	Pine.	Red Oak.	American Linden.	Totals.
Adams, .	2	12	1	2	1	1	12	1	1	1	1	2
Agawan, .	20	4	1	1	1	1	1	1	1	1	1	46
Amherst, .	1	13	4	13	1	1	1	1	1	1	1	4
Andover, .	1	13	1	1	1	1	1	1	1	1	1	4
Ashby, .	6	13	2	7	13	9	2	1	1	1	1	26
Athol, .	9	13	1	1	1	1	1	1	1	1	1	8
Auburn, .	1	14	1	4	22	4	2	3	1	1	1	44
Barnstable, .	20	1	1	4	1	1	1	1	1	1	1	1
Brewster, .	36	1	1	1	1	1	1	1	1	1	1	49
Brookfield, .	1	1	1	1	1	1	1	1	1	1	1	30
Chatham, .	1	1	1	1	1	1	1	1	1	1	1	40
Chelmsford, .	2	1	1	1	1	1	1	1	1	1	1	8
Cheshire, .	20	10	12	1	1	4	2	1	1	1	1	24
Dennis, .	3	10	1	1	1	1	1	1	1	1	1	26
Easthampton, .	3	1	1	1	1	1	1	1	1	1	1	3
Fitchburg, .	9	41	10	1	8	1	6	4	1	1	1	23
Gardner, .	2	26	10	1	1	1	4	1	1	1	1	53
Hadley, .	1	1	10	1	1	1	5	6	1	1	1	30
Hancock, .	1	1	1	1	1	1	1	1	1	1	1	21
Hatfield, .	1	1	1	1	1	1	1	1	1	1	1	1
Huntington, .	1	1	1	1	1	1	1	1	1	1	1	1
Lee, .	1	1	1	1	1	1	1	1	1	1	1	1
Leicester, .	1	1	1	1	1	1	1	1	1	1	1	1
Lenox, .	1	1	1	1	1	1	1	1	1	1	1	1
Lowell, .	1	2	1	3	3	1	3	1	1	1	1	9

VARIETIES AND DISTRIBUTION OF SHADE TREES PLANTED IN 1910—*Concluded.*

	American Elm.	Norway Maple.	Sugar Maple.	White Maple.	American Ash.	English Ash.	Russian Willow.	Laurel-leaf Willow.	Pine.	Red Oak.	American Linden.	Totals.
Montague,	1	1	1	1	24	1	1	1	1	1	1	24
Natick,	3	1	1	1	6	1	1	1	1	1	1	16
North Adams,	1	1	1	1	1	1	1	1	1	1	1	10
Northampton,	1	1	2	1	1	1	2	1	1	1	1	16
North Reading,	1	1	1	1	1	1	1	1	1	1	1	10
Norwood,	1	1	1	1	1	1	1	1	1	1	1	10
Orange,	1	1	1	1	1	1	1	1	1	1	1	10
Pittsfield,	1	1	1	1	1	1	1	1	1	1	1	10
Reading,	1	1	1	1	1	1	1	1	1	1	1	10
Richmond,	1	1	1	1	1	1	1	1	1	1	1	10
Spencer,	1	1	1	1	1	1	1	1	1	1	1	10
Stockbridge,	1	1	1	1	1	1	1	1	1	1	1	10
Templeton,	1	1	1	1	1	1	1	1	1	1	1	10
Townsend,	1	1	1	1	1	1	1	1	1	1	1	10
Tyngsborough,	1	1	1	1	1	1	1	1	1	1	1	10
Walpole,	1	1	1	1	1	1	1	1	1	1	1	10
Warren,	1	1	1	1	1	1	1	1	1	1	1	10
Wellesley,	1	1	1	1	1	1	1	1	1	1	1	10
West Brookfield,	1	1	1	1	1	1	1	1	1	1	1	10
Westfield,	1	1	1	1	1	1	1	1	1	1	1	10
Westminster,	1	1	1	1	1	1	1	1	1	1	1	10
Westwood,	1	1	1	1	1	1	1	1	1	1	1	10
Williamstown,	1	1	1	1	1	1	1	1	1	1	1	10
Wrentham,	1	1	1	1	1	1	1	1	1	1	1	10
Yarmouth,	1	1	1	1	1	1	1	1	1	1	1	10
Totals,	188	226	48	41	135	50	64	21	17	7	14	811

New Trees planted.

[illegible]

On Hand in Nursery Dec. 1, 1910.

Large trees. — American elm, 103; Norway maple, 238; sugar maple, 175; white maple, 71; American ash, 22; English ash, 109; Russian willow, 275; laurel-leaf willow, 112; ash-leaf maple, 26; American linden, 31; tulip tree, 22; oak, 10; total, 1,313.

Small trees. — American elm, 834; white ash, 2,133; green ash, 505; white maple, 122; ash-leaf maple, 209; scarlet oak, 91; red oak, 226; pin oak, 119; American linden, 68; willow, 15; poplar, 21; total, 4,335.

APPENDIX D.

RELATING TO THE PLANTING AND CARE OF SHADE TREES.

REPORT OF MR. F. W. RANE, STATE FORESTER.

BOSTON, MASS., Jan. 4, 1911.

HON. HAROLD PARKER, *Chairman, Massachusetts Highway Commission,*
15 Ashburton Place, Boston, Mass.

DEAR SIR:—As in the past, we submit to you a brief report on the moth work done on the State highways in accordance with the request of your commission and under the direction of this department.

The work has been carried on along practically the same lines as in previous years, and very good results accomplished in most places. This last year considerable spraying was done against the elm-leaf beetle, as well as against the gypsy and brown-tail moths; also quite a number of highways were taken care of by the federal authorities, as in the year previous. In the coming year, unfortunately, the federal work will be confined to the outlying territory, — that is, to a section where the moth infestation on most of the State highways is not as serious as in the metropolitan district. Therefore, it will be necessary for us to take up the work on these highways, which had previously been done by the government, and this will necessitate a somewhat larger expenditure for this work.

Nearly all of the winter work, such as removing the brown-tail webs and treating the gypsy moth egg clusters, has been completed on the highways at the present time. It has been necessary to remove many dead trees on highways this year, and some thinning has been done in such places as had not previously received this treatment; the situation will be benefited to some extent through your commission's allowing us to do thinning in such places as was recommended in our last report, that is, where the street trees were too numerous.

Work has been done on the State highways in the cities and towns as per list inclosed herewith:—

Acton.
Amesbury.
Andover.
Attleborough.
Barnstable.
Bedford.
Bellingham.
Billerica.
Bourne.
Boxborough.
Braintree.
Brewster.
Bridgewater.
Brockton.
Chatham.
Chelmsford.
Cohasset.
Concord.
Dennis.
Dracut.
Duxbury.
Falmouth.
Framingham.
Franklin.
Groton.
Groveland.
Hanover.
Harvard.
Harwich.

Haverhill.
Holbrook.
Holliston.
Ipswich.
Kingston.
Lakeville.
Lancaster.
Littleton.
Leominster.
Lowell.
Lunenburg.
Mansfield.
Marion.
Marlborough.
Marshfield.
Melrose.
Merrimac.
Methuen.
Middleborough.
Natick.
Needham.
Newburyport.
North Attleborough.
Northborough.
Orleans.
Pembroke.
Quincy.
Randolph.
Raynham.

Reading.
Rockland.
Rockport.
Scituate.
Shrewsbury.
South Hadley.
Southborough.
Stoneham.
Sudbury.
Sutton.
Swansea.
Taunton.
Tewksbury.
Townsend.
Truro.
Tyngsborough.
Walpole.
Wayland.
Wellesley.
Wellfleet.
Wenham.
Westford.
Weston.
Weymouth.
Wilmington.
Winchester.
Wrentham.
Yarmouth.

Yours very truly,

F. W. RANE,
State Forester.

APPENDIX E.

REPORT OF THE CHEMIST.

Massachusetts Highway Commission.

GENTLEMEN:— During the year 1910, 266 samples of bituminous road materials used in construction have been submitted to certain chemical and physical tests, and a large amount of special experimental work has been carried on to test and prove, if possible, the value of the various analytical methods used in this and other laboratories engaged in such work. As a result of the investigations of this kind carried on since the commission began to study the composition of these materials, certain tests have been worked out that appear to show with a fair degree of satisfaction, from a chemist's point of view, the relative value of the materials for road work. A comparison, however, of the analytical results and the practical results obtained from the use of such materials in road construction is of course necessary for an accurate estimation of their real value.

During 1910 it has been customary in the laboratory to make, with all materials received, determinations of specific gravity, viscosity, the percentage of each material evaporating when a weighed portion is heated for twenty-one hours at 250°C., and the per cent. of matters in each sample insoluble in carbon bisulphid. With the samples of asphaltic bodies forwarded, further tests have been made to show the per cent. insoluble in petroleum ether, and also to show what we have designated "potential asphaltene." Penetration tests have been made on solid or semi-solid materials that could not be tested with the viscosimeter, and an adhesion test has also been largely used. With the samples of tar distillations have been made, as in previous years. A number of determinations of the percentage of paraffin present in the different samples were made during the year, but no considerable amounts were found in any sample examined. Many residues after extraction with petroleum ether were extracted with carbon tetrachloride and

then with carbon bisulphid. This was done to show the amount of "carbenes" formed during the laboratory heating, which was more severe than would ever occur in actual practice. "Carbenes" were found in only 8 of these residues, the average amount being about 1 per cent., the maximum 2.5 per cent. and the minimum 2 per cent. The average per cent. "carbene" formed by the heating was only 4 per cent. These figures seem to show that the significance of "carbenes" has been overestimated, at least in the class of asphaltic compounds used in this State.

The method for determining specific gravity at the laboratory is satisfactory, except in the case of samples which froth when warm. This frothing tends to decrease the density of the sample, and also tends to make the viscosity determinations high. Methods for determining the percentages insoluble in petroleum ether and carbon bisulphid, and also the penetration test, are apparently satisfactory. It is evident, however, from our continued work that the test for the weight evaporated when samples are heated to 250°C. for twenty-one hours should be modified. With the thinner samples the test is of considerable value, and shows with some clearness the residual material that should be of value in road binding. With the heavier or thicker samples, however, there is apparently a considerable decomposition taking place when the sample is heated at this temperature for so long a period.

Ninety-one determinations of potential asphaltene have been made and reported during the year. This test can hardly be recommended for routine work, because of the length of time required in carrying it out; but it is of value in determining asphaltic bodies present, and especially valuable for comparisons when new materials are being examined and in the case of thin oils.

A description of the various methods of testing these materials is given here:—

METHODS OF ANALYSIS USED FOR BITUMINOUS MATERIALS.

Specific Gravity.

About 20 c.c. of the warmed sample are poured into a weighed 25-c.c. graduated flask, and allowed to stand for several hours at room temperature. The flask is then weighed and filled with distilled water at room temperature, and suction applied to the neck of the flask to remove air bubbles in the sample. The flask is then made up to the mark with water, and weighed. A simple calculation gives the weight and volume of the sample, and from these the specific gravity is calculated.

Viscosity.

Viscosity is determined by noting the seconds required for 60 c.c., at room temperature, of the sample to pass through the Lawrence viscosimeter at 100°C. The water jacket of the viscosimeter is heated to boiling, and the sample, previously heated to 100°C., is strained through wire gauze into the pipette of the viscosimeter. The 60 c.c. is measured by collecting a weight equivalent to 60 c.c.

Adhesion.

Two brass discs 1 inch in diameter, at the ends of rods 4 inches in length, held in place by suitable supports, are smeared over with the sample to be tested, and pressed firmly together. One disc is held rigid, while to the end of the rod of the other a small pail is attached by a string led over a pulley. Shot is poured into the pail at a uniform rate of 2,250 grams per minute. The adhesion is expressed as the number of grams required to pull the discs apart when the sample is at a temperature of 20°C., and the weight is added at the uniform rate.

Penetration.

Penetration is determined by the Dow penetrometer, using 100 grams load. The sample is melted in a 3-inch tin dish, and cooled to 20°C. The penetration of the needle into the material in five seconds is measured and expressed in units of $\frac{1}{100}$ c.m.

Per Cent. Evaporation.

The per cent. evaporated is obtained by weighing about 20 grams of the sample into a weighed flat-bottomed tin dish 3 inches in diameter, and heating for twenty-one hours at 100°C. in the case of tars, and 250°C. in the case of asphaltic compounds. After cooling, the dish is weighed and the per cent. lost calculated.

Per Cent. Insoluble in Petroleum Ether and Carbon Bisulphid.

Five to 10 grams of the sample are weighed into a weighed extraction shell, and then extracted in a Soxhlet apparatus until the solvent is colorless. The shell is then dried and weighed in a weighing beaker. In case of asphaltic compounds the carbon bisulphid insoluble is found by extracting the portion insoluble in petroleum ether.

Distillation.

Distillations of tars are made in the usual way in an iron retort, as described in various places.

Potential Asphaltene.

This test is carried out as follows: the sample is subjected to a number of heatings at 250°C. in a well-ventilated oven, with intermediate separations of asphaltene and of matter insoluble in carbon bisulphid, until the final petroleum ether extract is not more than 10 per cent. by weight of the original sample. Samples treated in this way should show the following results, if of satisfactory quality: assuming that the final 10 per cent. has the same composition as the 90 per cent. of the material examined, the loss should not be more than 35 per cent. by weight; the amount of asphaltene in the original sample should not be greater than 6 per cent. by weight, and the amount of asphaltene found by this treatment plus that in the original sample should be at least 58 per cent. by weight of the original sample; the amount of matter insoluble in carbon bisulphid as a result of this treatment should be not greater than 5 per cent.

While the number of samples examined has been less than in 1909, the methods have been somewhat more involved and somewhat more thorough, especially that for the determination of potential asphaltene, as described above, and hence nearly an equal amount of work has been done.

Respectfully submitted,

H. W. CLARK,
Chemist.

APPENDIX F.

TABLE SHOWING THE HIGHWAYS LAID OUT OR CONTRACTED FOR BY THE COMMISSION, AND CONSTRUCTION EXPENDITURES, TO DEC. 1, 1910.

TOWN OR CITY.	Year.	ROAD LAID OUT.			Length constructed (Miles).	Con-struction Ex-penditures.
		From --	Direction.	Length (Miles).		
Abington,	1900-1-3,	Brockton line,	Easterly,	1.73	1.74	\$26,778 40
Abington,	1905-7,	Holbrook line,	Easterly,	1.64	1.64	
Acton, ¹	1899-1900-1-2,	Concord line to Littleton line,	Northwesterly,	3.71	3.71	46,493 77
Acton (west), ²	1901-7,	Borborough line,	Southwesterly,	1.67	1.67	
Acushnet,	1901-3,	Rochester line via Long Plain to Rochester line,	Westerly and northerly,	2.80	2.80	8,951 63
Acushnet,	1897,	1,500 feet from New Bedford line,	Northerly, . . . . .	.61	.61	
Adams (Maple Grove),	1897,	Cheshire line,	Northerly, . . . . .	.57	.57	19,512 15
Adams (Orchard Street),	1908,	Cheshire line,	Northerly,	1.46	1.46	
Agawam,	1903-4-6-7-9,	South end bridge at Connecticut River,	Southerly,	3.10	3.10	37,066 42
Amesbury,	1899-1901-3-4,	Merrimac line,	Easterly,	2.25	2.25	32,713 85
Amesbury,	1906-7,	Salisbury line,	Westerly, . . . . .	.77	.77	
Amherst,	1901-4,	Hadley line,	Northeasterly, . . . . .	.97	.97	11,609 86
Andover,	1893-6,	Lawrence line,	Southerly,	1.22	1.22	45,135 16
Andover,	1897-9-1900-2-3,	North Reading line,	Northerly,	2.97	2.97	

Ashby,	.		1894-5-6-7-8-9,	Fitchburg line to Ashby post-office,	Northerly,	3.57	55,977 55
Ashby,	.		1910,	Townsend line,	Southwesterly,	.48	35,282 05
Ashfield,	.		1897-8,	One mile north of Ashfield post-office,	Northerly,	1.61	10,871 70
Ashland,	.		1903,	Southborough line,	Easterly,	1.47	40,026 96
Ashland,	.		1910,	Framingham line,	Southerly,	1.73	20,721 31
Athol,	.		1895-6,	Orange line,	Easterly,	1.61	70,022 58
Athol,	.		1902-3,	Phillipston line,	Northwesterly,	1.49	42,753 63
Attleborough,	.		1900-1-3,	North Attleborough line,	Southwesterly,	2.65	29,313 89
Attleborough,	.		1909,	Norton line,	Southeasterly,	.74	106,695 23
Auburn,	.		1895-6-7-8-9-1901-3-4,	Worcester line to Oxford line,	Southwesterly,	5.28	22,144 35
Barnstable (north),	.		1899-1902-7,	Sandwich line,	Southwesterly,	2.68	22,534 14
Barnstable,	.		1910,	Easterly end of 1907 section,	-	1.59	
Barnstable (north),	.		1909,	Yarmouth line,	Westerly,	1.91	
Barnstable (south),	.		1897-1901,	Yarmouth line,	Westerly,	2.26	
Barnstable (west),	.		1904,	Marston Mills,	Southerly,	1.48	
Barre,	.		1897-9,	Ware River bridge to Barre Common,	Northwesterly,	2.89	
Becket,	.		1902-4-5-6-8,	Chester line,	Westerly,	5.56	
Becket,	.		1910,	Point on Becket-Lee Road,	-	.59	
Bedford,	.		1897-1902,	Lexington line,	Northwesterly,	1.07	
Bedford,	.		1903-6,	Carlisle bridge,	Southeasterly,	.68	
Belchertown,	.		1900-1-2-7-8,	Near depot,	Westerly,	2.35	

Exclusive of 970 feet at railroad crossing.

Exclusive of 1,100 feet at railroad crossing.

TABLE SHOWING THE HIGHWAYS LAID OUT OR CONTRACTED FOR BY THE COMMISSION, ETC. — *Continued.*

TOWN OR CITY.	Year.	ROAD LAID OUT.			Length con- struction (Miles).	Con- struction Ex- penditures.
		From —	Direction.	Length (Miles).		
Bellingham,	1902-5,	900 feet from Blackstone line,	Northeasterly,	.55	.55	\$22,865 78
Bellingham,	1904-5-6,	Franklin line to Mendon line,	Westerly,	2.63	2.63	
Berkley,	1906,	Lakeville line,	Northwesterly,	.77	.77	5,142 81
Beverly,	1895-7-8,	Wenham line,	Southerly,	2.01	2.01	33,101 24
Beverly,	1905-6,	Manchester line,	Southwesterly,	3.67	3.67	
Billerica,	1908,	A point near the "Common,"	Southeasterly,	.58	.58	7,128 54
Blackstone,	1899-1900-2-9,	Uxbridge line,	Southeasterly,	2.55	2.55	19,936 41
Blackstone,	1905,	Bellingham line to Woonsocket line,	Southwesterly,	.06	.06	
Boston,	1908,	Lagrange Street to Dedham line,	Southwesterly,	1.40	1.40	133,502 53
Bourne,	1897-8-1904,	Cohasset Narrows,	Easterly,	2.09	2.09	
Bourne,	1903-5-7,	Back River bridge,	Southerly,	2.41	2.41	30,121 45
Bourne,	1910,	Near southerly end of 1907 section,	Southerly,	1.12	1.12	
Boxborough,	1897-9-1905-7,	Acton line,	Westerly,	3.31	3.31	20,512 61
Braintree,	1900-2,	Quincy line,	Southeasterly,	1.06	1.06	14,798 70
Brewster,	1895-6-7-1901,	Dennis line to Orleans line,	Easterly,	7.78	7.78	30,973 46
Brewster,	1908,	Orleans line to Chatham line,	Southerly,	.04	.04	
Bridgewater,	1904-5-6-7-8,	Near Middleborough line,	Northerly and northwesterly,	3.47	3.47	25,481 79
Brimfield,	1897-9,	Monson line,	Southerly,	2.34	2.34	24,916 26
Brimfield,	1901-2,	Wales line,	Northerly,	1.63	1.63	

Brookton,	1897-9-9,	Easton line,	Easterly,	1.87	1.87	
Brookton,	1900,	Abington line,	Westerly, . . . . .	.66	.66	31,489 47
Brookton,	1904,	West Bridgewater line,	Northerly, . . . . .	.66	.66	
Brookfield,	1902-3,	West Brookfield line,	Easterly, . . . . .	.87	.87	
Brookfield,	1905-7,	Spencer line,	Southwesterly, . . . . .	.77	.77	44,902 88
Brookfield,	1897-9-1900-4,	Brookfield village,	Easterly,	2.25	2.25	
Buckland,	1894-5-6-7-8-9-1900-3-7,	Shelburne Falls station,	Westerly and southerly,	4.29	4.29	62,580 95
Burlington,	1903-4-5-6,	Woburn line to Billerica line,	Northwesterly,	3.80	3.80	33,664 06
Canton,	1905-6-7-8,	Stoughton line,	Northerly,	3.23	3.23	25,436 84
Charlemont,	1897-8-9,	Deerfield River Bridge,	Easterly, . . . . .	.77	.77	19,782 23
Charlton,	1901-2,	Charlton Depot to Charlton City,	Southerly,	1.91	1.91	
Charlton,	1905-6,	Near Charlton City,	Easterly, . . . . .	.84	.84	
Charlton,	1909,	Near Charlton City,	Southerly, . . . . .	.29	.29	41,794 56
Charlton,	1907,	Oxford line,	Southwesterly, . . . . .	.46	.46	
Charlton,	1910,	Westerly end of 1907 section,	Southwesterly,	1.05	.26	
Chatham,	1899-1901-2-5-6,	Depot Street to Harwich line,	Westerly,	4.04	4.04	45,751 74
Chatham,	1907,	Depot to Wading Place bridge, Harwich line,	Northwesterly,	3.13	3.13	
Chelmsford, ²	1898-9-1901-7,	Lowell line to North Chelmsford,	Westerly and northerly,	1.96	1.96	
Chelmsford,	1910,	Tyngsboro line to 1907 section,	Southwesterly, . . . . .	.46	.46	
Chelmsford,	1903-4,	Lowell line towards Chelmsford Centre,	Southwesterly,	1.27	1.27	47,218 90
Chelmsford,	1908,	Near Chelmsford village,	Southwesterly, . . . . .	.98	.98	
Chelsea,	1901-4,	Lewis Street,	Southwesterly, . . . . .	.96	.96	25,382 66

¹ Exclusive of 275 feet at railroad.

² Exclusive of 900 feet at railroad crossing.

TABLE SHOWING THE HIGHWAYS LAID OUT OR CONTRACTED FOR BY THE COMMISSION, ETC. — *Continued.*

TOWN OR CITY.	Year.	ROAD LAID OUT.			Length constructed (Miles).	Con-struction Ex-penditures.
		From —	Direction.	Length (Miles).		
Cheshire,	1899-1900-1-2,	Farnum's station, Boston & Albany Rail-road.	Northeasterly,	2.60	2.60	\$52,182 86
Cheshire,	1910,	Farnum's station to Lanesborough line,	Southwesterly,	1.59	1.59	
Chester,	1899-1900-1-2-4-5,	Becket line,	Easterly,	3.25	3.25	53,848 97
Chester,	1910,	Southwesterly end of 1905 section,	Southwesterly, . . . . .	.59	.59	
Chester,	1909,	Huntington line,	Northwesterly,	1.03	1.03	
Chester, ¹	1910,	At Westfield River bridge, . . . . .	— . . . . .	.28	—	
Chicopee,	1897-8-9,	Springfield line,	Northerly, . . . . .	.92	.92	51,688 71
Chicopee,	1902-3-4-5-6-7,	Near Chicopee River bridge,	Northerly,	2.97	2.97	
Chilmark,	1905-6-8-9,	Beetlebung Corner,	Northeasterly and southwesterly,	4.99	4.99	28,548 17
Clarksburg,	1905-7,	North Adams line,	Northeasterly and northerly, . . . . .	.97	.97	
Clarksburg,	1909,	Red Mill bridge,	Northerly, . . . . .	.12	.12	14,466 74
Cohasset,	1897-8-1900,	Near Hingham line,	Easterly,	1.73	1.73	
Cohasset,	1902-3,	Beechwood Street to Scituate line,	Southerly, . . . . .	.55	.55	16,354 71
Colrain, ²	1898-1901-5,	Shelburne line,	Northerly,	2.13	2.13	
Concord,	1897-8,	Lincoln line,	Northwesterly,	1.47	1.47	38,852 41
Concord,	1900-5-6,	Acton line,	Southwesterly,	2.12	2.12	
Dalton,	1895-6-1903-4,	Pittsfield line,	Easterly,	2.55	2.55	30,323 97
Dartmouth,	1898-9-1900-1-3-5,	Near Westport line to New Bedford line,	Easterly,	4.54	4.54	
Dedham,	1908,	Boston line,	Southerly, . . . . .	.03	.03	1,040 87

Deerfield,	1894-6,	South Deerfield station to Sunderland bridge.	Southeasterly,	. . . . .	1.53
Deerfield,	1900-1-2-3,	Cheapside bridge,	Southerly, . . . . .	. . . . .	1.44
Deerfield,	1904-5-6-7-8-9,	South Deerfield village,	Northerly, . . . . .	. . . . .	3.10
Deerfield,	1910,	Northerly end of 1909 section,	Northerly, . . . . .	. . . . .	-
Dennis (north),	1895-6-7-8,	Yarmouth line to Brewster line,	Northwesterly, . . . . .	. . . . .	4.27
Dennis (south),	1900-1-2-4-6,	Bass River bridge to Harwich line,	Easterly, . . . . .	. . . . .	3.23
Dighton (north),	1902-3,	Taunton line to Rehoboth line,	Southwesterly, . . . . .	. . . . .	1.56
Dighton (south),	1905-6-8,	Three Mile River bridge,	Southwesterly, . . . . .	. . . . .	1.22
Dighton,	1909,	Near Somerset line,	Northerly, . . . . .	. . . . .	.79
Dighton,	1910,	Northerly end of 1909 section,	Northerly, . . . . .	. . . . .	.30
Douglas,	1902-4,	Sutton line at Manchaug,	Southeasterly, . . . . .	. . . . .	1.60
Douglas,	1905,	Main Street,	Southeasterly, . . . . .	. . . . .	.54
Dover,	1905-7,	Charles River bridge,	Westerly, . . . . .	. . . . .	2.18
Draut,	1905-6-7,	Near Lowell line on Methuen Road,	Northeasterly, . . . . .	. . . . .	1.83
Dudley,	1902-4-6-7,	1,400 feet from Webster line,	Westerly and southwesterly, . . . . .	. . . . .	2.29
Duxbury,	1894-5-7-9-1903-5-8-9,	Marshfield line to Kingston line,	Southerly and southwesterly, . . . . .	. . . . .	5.16
Eastham,	1903-4-5-6-9,	Wellfleet line to Orleans line,	Southerly, . . . . .	. . . . .	6.46
Easthampton,	1895-6,	Northampton line,	Southwesterly, . . . . .	. . . . .	1.32
Easthampton,	1900-1,	Clark Street to foot of Mount Tom,	Southerly, . . . . .	. . . . .	1.10
East Longmeadow,	1904-6,	East Longmeadow village,	Northwesterly, . . . . .	. . . . .	1.04
East Longmeadow,	1910,	Springfield line to 1006 section,	Southeasterly, . . . . .	. . . . .	.76
Easton,	1900,	Brockton line,	Southwesterly, . . . . .	. . . . .	.80

* Exclusive of 2,000 feet at North River bridge.

* Exclusive of 400 feet at railroad bridge.

† Concrete bridge in process.

TABLE SHOWING THE HIGHWAYS LAID OUT OR CONTRACTED FOR BY THE COMMISSION, ETC. — *Continued.*

TOWN OR CITY.	Year.	ROAD LAID OUT.			Length constructed (Miles).	Con- struction Ex- penditures.
		From —	Direction.			
Edgartown.	1897-9-1900-1-2-3.	Oak Bluffs line.	Southerly.	.	2.43	\$17,475 99
Erving.	1898-9-1900.	Town hall to Orange line.	Easterly.	.	2.04	
Erving.	1907-9.	Millers Falls.	Easterly.	.	1.32	47,586 05
Erving.	1910.	Easterly end of 1909 section.	Easterly.	.	1.04	
Essex.	1902-3.	Essex River.	Easterly and westerly.	.	.35	9,182 00
Fairhaven.	1894-5.	Mattapoisett line.	Westerly.	.	1.45	14,366 53
Falmouth.	1904.	Bourne line to Woods Hole.	Southerly.	.	11.66	
Falmouth.	1905-6-7-8-9.	East Falmouth village.	Southeasterly and easterly.	.	2.88	39,101 66
Falmouth.	1910.	Easterly end of 1909 section.	Northeasterly.	.	1.02	
Fitchburg.	1894-5.	Westminster line.	Easterly.	.	.97	
Fitchburg.	1897.	Lunenburg line.	Westerly.	.	.60	51,100 88
Fitchburg.	1900-1-3-4.	Ashby line.	Southerly.	.	2.55	
Forborough.	1901-2.	Mansfield line.	Northerly.	.	1.81	19,537 02
Forborough.	1905-8.	Wrentham line.	Easterly and southeasterly.	.	1.70	
Framingham.	1904-5.	Southborough line via Pleasant Street.	Southeasterly.	.	2.42	16,057 51
Framingham.	1910.	Ashland line.	Northerly.	.	.79	
Franklin.	1905-7.	Bellingham line.	Easterly.	.	1.38	17,644 42
Franklin.	1910.	Easterly end of 1907 section.	Northeasterly.	.	1.20	

Freetown,	1902-3,	New Bedford line to Lakeville line,	Northerly,	3.19	18,524 71
Freetown, ^a	1908,	Fall River line,	Northeasterly, . . . . .	.68	
Gardner,	1897-8,	Templeton line,	Easterly,	2.38	
Gardner,	1900-1,	Westminster line,	Northwesterly, . . . . .	.98	44,475 90
Gloucester,	1894-5-8-1905-6-7,	Manchester line to "Cut bridge,"	Northeasterly and northerly,	3.46	
Gloucester,	1907,	Rockport line,	Southerly, . . . . .	.52	47,867 88
Goshen,	1894-5-8,	Williamsburg line,	Northwesterly and northerly,	2.46	46,440 20
Graton,	1897-9-1900-5,	Millbury line,	Southeasterly and southerly,	2.05	20,318 21
Grauby,	1894-1902-5-6-8,	South Hadley line,	Easterly,	2.26	33,151 34
Great Barrington,	1894-6-7-1902,	Housatonic River bridge,	Easterly,	3.41	44,862 68
Greenfield, ^a	1899-1900-2,	Washington Street,	Easterly,	1.33	
Greenfield,	1903-6-7-8,	Silver Street,	Northeasterly,	1.92	
Greenfield,	1905,	One mile from town section on Colrain Road,	Northerly, . . . . .	.26	42,844 03
Greenfield,	1910,	Northerly end of 1908 section,	Northerly,	1.83	
Groton,	1901-2-7,	Pepperell line,	Southeasterly and southerly,	1.41	25,901 26
Groveland,	1900-1-2-5,	Merrimac River bridge to West Newbury line,	Northeasterly,	1.72	22,611 99
Hadley,	1894-1904,	Connecticut River to Amherst line,	Easterly,	4.69	73,372 42
Hamilton,	1899-1900,	Ipswich line,	Southwesterly,	1.44	
Hamilton,	1909,	Wenham line,	Northeasterly, . . . . .	.71	25,739 46
Hamilton,	1910,	Northerly end of 1909 section,	Northeasterly, . . . . .	.51	
Hancock,	1895-6-8-9,	Pittsfield line to New York line,	Westerly,	3.23	51,915 74
Hanover,	1906-8,	Pembroke line,	Northwesterly,	1.85	9,041 43

Exclusive of 1,100 feet at railroad crossing and 500 feet at Cheapside bridge.

Exclusive of 132 feet at railroad crossing.

Exclusive of 100 feet at railroad crossing.

TABLE SHOWING THE HIGHWAYS LAID OUT OR CONTRACTED FOR BY THE COMMISSION, ETC. — *Continued.*

TOWN OR CITY.	Year.	ROAD LAID OUT.			Length constructed (Miles).	Con-struction Ex-penditures.
		From —	Direction.			
Hardwick,	1897-1901,	New Braintree line,	Northerly, . . . . .	.82	.82	\$6,257 06
Harvard,	1900-5,	Woodchuck Hill to Harvard Common,	Westerly,	1.58	1.58	24,636 38
Harvard,	1910,	Boxborough line to 1900 section,	Westerly, . . . . .	.73	.50	
Harwich,	1899-1900-1-2-3,	Dennis line to Chatham line,	Easterly,	5.10	5.10	33,401 90
Harwich,	1908,	Chatham line to Brewster line,	Northerly,	1.38	1.38	
Hatfield,	1901-6-8-9,	Northampton line,	Northerly,	2.01	2.01	36,354 89
Hatfield,	1910,	Northerly end of 1909 section,	Northeasterly, . . . . .	.64	.55	
Haverhill,	1899,	River and Maxwell streets to Methuen line,	Westerly,	2.63	2.63	
Haverhill,	1902-7,	Kinoza Road,	Northeasterly and easterly,	1.93	1.93	72,381 76
Haverhill,	1910,	Merrimac line to 1907 section,	Westerly, . . . . .	.73	.73	
Hingham,	1894,	Weymouth Back River,	Easterly,	1.42	1.42	15,990 41
Hingham,	1896-7,	Near Cohasset line,	Westerly,	1.24	1.24	
Hinsdale,	1901-2-3,	Dalton line,	Southwesterly,	1.02	1.02	13,487 24
Holbrook,	1894-6-1902,	Weymouth line,	Northwesterly,	1.75	1.75	15,373 19
Holden,	1894-5-6-7,	Jefferson village,	Southwesterly,	2.70	2.70	51,227 43
Holden,	1898-1900-8,	Worcester line,	Northerly,	1.51	1.51	
Holden,	1905,	Rutland line,	Easterly, . . . . .	.52	.52	-
Holliston,	1906-7,	Milford line,	Northeasterly,	1.46	1.46	19,916 41
Holliston,	1910,	End of 1907 section,	Northeasterly,	1.86	1.70	

Holyoke,	1910,	Easthampton line,	Southerly,	4.16	16,311 19
Hudson,	1906-7,	Brigham Street via Washington Street to Marlborough line,	Southerly,	1.14	8,137 91
Huntington,	1895-6,	Russell line,	Westerly,	1.01	28,070 92
Huntington,	1903-6-9,	Chester line,	Southeasterly,	1.25	30,357 89
Ipswich,	1907-8-9,	Ipswich Common,	Southerly,	2.13	7,362 67
Ipswich,	1910,	Rowley line,	Southerly,	1.37	13,579 71
Kingston,	1905-6,	Duxbury line,	Southerly,	1.02	7,341 04
Lakeville,	1901-2,	One-half mile from Middleborough line,	Southwesterly,	3.57	2,079 55
Lakeville,	1910,	Freetown line,	Northerly, . . . . .	.65	60,106 30
Lancaster, 1,	1902,	Clinton line to Sterling line,	Northerly,	1.25	-
Lawrence,	1896,	Methuen line,	Southerly, . . . . .	.27	67,131 58
Lee,	1894-5-6-1908-9,	Lee Park to Strickland House,	Easterly,	2.86	39,088 25
Lee,	1900,	Lenox line to Lee village,	Southerly,	1.26	21,431 67
Lee,	1906,	Lenox line, Stockbridge Street,	Southerly,	1.03	37,853 88
Lee (south),	1908,	Stockbridge line, Main Street,	Easterly, . . . . .	.90	
Leicester, 1,	1894-5-6-8-9,	Worcester line to Spencer line,	Westerly,	4.87	
Lenox,	1899-1900-1,	Lee line to Lenox village,	Northerly,	2.28	
Lenox,	1904-5,	Lenox village to Pittsfield line,	Northerly,	3.18	
Lenox,	1906,	Lee line via Kemble Street,	Northerly,	2.20	
Leominster,	1901-2,	Sterling line,	Northerly,	2.18	
Lexington,	1895-6-7-8,	Massachusetts Avenue,	Westerly,	3.44	
Lexington,	1900,	Bedford line,	Southeasterly, . . . . .	.85	

* Exclusive of portion through Leicester Center.

1 Exclusive of 1,000 feet at railroad crossing.

TABLE SHOWING THE HIGHWAYS LAID OUT OR CONTRACTED FOR BY THE COMMISSION, ETC. — *Continued.*

TOWN OR CITY.	Year.	ROAD LAID OUT.		Direction.	Length constructed (Miles).	Length constructed (Miles).	Construction Expenditures.
		From —	To —				
Lincoln,	1895-6-7,	Concord line to Lexington line,	. . . . .	Southeasterly,	2.06	2.06	\$16,362 46
Littleton,	1902-3-4,	Acton line via Great Road,	. . . . .	Northerly,	2.13	2.13	
Littleton,	1908,	Northerly end of 1904 section, .	. . . . .	Northerly, . . . . .	.52	.52	14,089 65
Littleton,	1902,	Westford line to Great Road, . .	. . . . .	Southwesterly, . . . . .	.32	.32	
Lowell (Boulevard),	1897,	Tyngsborough line, . . . . .	. . . . .	Easterly, . . . . .	.97	.97	22,873 70
Lowell (Princeton Street),	1897-8,	Chelmsford line, . . . . .	. . . . .	Easterly,	1.33	1.33	
Lunenburg,	1898-9-1900-1-3,	Fitchburg line, . . . . .	. . . . .	Easterly,	2.72	2.72	33,941 61
Lunenburg,	1910,	Easterly end of 1903 section, . .	. . . . .	Easterly,	1.40	1.40	
Lynn,	1899,	Saugus River to Sea Street, . . .	. . . . .	Northeasterly, . . . . .	.90	.90	140,944 06
Mansfield,	1901,	Forborough line, . . . . .	. . . . .	Southeasterly, . . . . .	.72	.72	10,068 19
Mansfield,	1906,	Norton line, . . . . .	. . . . .	Northerly, . . . . .	.49	.49	
Marion,	1894-5-1901,	Marion village to Wareham line, .	. . . . .	Northeasterly,	1.59	1.59	30,984 13
Marion,	1897-9-1901-2,	Marion village to Mattapoisett line,	. . . . .	Westerly,	1.84	1.84	
Marion,	1903,	Marion village to Rochester line, .	. . . . .	Northwesterly,	2.14	2.14	
Marlborough (east),	1897-1902-3-4,	Sudbury line to Hooper Street, . .	. . . . .	Westerly,	3.10	3.10	63,676 56
Marlborough (west),	1897-9-1900-1,	Northborough line, . . . . .	. . . . .	Easterly,	2.42	2.42	
Marlborough, ¹	1908,	Hudson line, . . . . .	. . . . .	Southerly, . . . . .	.81	.81	
Marshfield,	1894-6-9-9-1901-2-4-7,	Duxbury line, . . . . .	. . . . .	Northerly,	4.60	4.60	54,071 27
Marshfield,	1909,	Near North River bridge, . . . .	. . . . .	Southerly, . . . . .	.74	.74	
Marshfield,	1910,	Connecting 1907 and 1909 sections, .	. . . . .	-	2.94	2.94	

	1894-5,		Fairhaven line,		Easterly,	1.16	1.16	24,528 57
Matapoisett,	1900-1-3,		Marion line to Ned Point Light Road,		Westerly,	2.05	2.05	30,974 24
Medford,	1907,		Somerville line via Mystic Avenue,		Northerly,	.86	.86	5,056 49
Melrose,	1906,		Saugus line at Upham Street,		Westerly,	.39	.39	
Merrimac,	1897-8-9,		Near Haverhill line,		Northerly,	.92	.92	
Merrimac,	1901-3,		Amesbury line,		Southwesterly,	1.20	1.20	22,891 69
Merrimac,	1910,		Haverhill line,		Easterly,	.11	.11	
Methuen,	1896-1900-1-2-6-7-8,		Lawrence line to Haverhill line,		Northeasterly,	3.69	3.69	39,966 84
Middleborough,	1894-6-7-8-1902-3,		Nemasket River to Rochester line,		Southeasterly,	8.98	8.98	57,590 74
Middleborough,	1900-7-8,		Bridgewater line to railroad bridge on Everett Street.		Southerly,	3.47	3.47	
Milford,	1904-5,		Highland Avenue via West Street to Hopdale line.		Northeasterly,	1.75	1.75	
Milford,	1909,		Holliston line,		Southwesterly,	.63	.63	26,109 97
Milford,	1910,		Southerly end of 1909 section,		Southwesterly,	1.18	1.18	
Milbury,	1902,		Worcester line to Grafton line,		Southeasterly,	.78	.78	
Milbury,	1900-3-4,		Worcester line,		Southerly,	1.61	1.61	28,154 27
Milbury,	1906,		Sutton line,		Northeasterly,	.59	.59	
Milton,	1899-1900,		Neponset River at Granite bridge,		Southeasterly,	.87	.87	11,344 26
Monson,	1894,		Railroad bridge toward Palmer,		Northerly,	.93	.93	
Monson,	1901-5,		Palmer line to Brimfield line,		Southeasterly,	.39	.39	16,159 06
Monson,	1908,		Palmer line,		Easterly and westerly,	.29	.29	
Montague,	1898-9-1904-6,		Third Street near L Street, Turners Falls,		Easterly,	3.23	3.23	
Montague,	1905-9,		Connecticut River bridge,		Northeasterly,	1.68	1.68	48,793 37
Montague,	1910,		Easterly end of 1906 section,		Easterly,	.82	.82	

: Grading only.

TABLE SHOWING THE HIGHWAYS LAID OUT OR CONTRACTED FOR BY THE COMMISSION, ETC. — *Continued.*

TOWN OR CITY.	Year.	ROAD LAID OUT.			Length constructed (Miles).	Con- struction Ex- penditures.
		From —	Direction.	Length (Miles).		
Nantucket,	1894-5-6-7-9-1900-1-3,	First mile stone to Siasconset,	Easterly,	6.48	6.48	\$52,893 84
Natick,	1901,	Wellesley line to Union Square,	Westerly,	1.14	1.14	21,538 46
Natick,	1903,	Sherborn line to Cemetery Street,	Easterly,	2.06	2.06	
Needham,	1901,	Newton line,	Westerly,	1.00	1.00	11,313 34
Needham,	1905,	Charles River bridge, Chestnut Street,	Northerly,	1.03	1.03	
New Braintree,	1897,	Hardwick line to Ware line,	Southerly, . . . . .	.17	.17	3,944 07
New Braintree,	1903,	New Braintree village,	Northerly, . . . . .	.22	.22	
Newbury,	1899-1900-1-2-4-5-6,	Newburyport line via Oldtown to Rowley line,	Southerly and southwesterly,	4.23	4.23	33,292 09
Newburyport,	1896-7-8,	West Newbury line,	Easterly,	1.75	1.75	13,096 79
Newton,	1901,	Needham line,	Easterly,	1.03	1.03	6,554 87
Norfolk,	1895,	Norfolk line to Wrentham line,	Southwesterly,	1.45	1.45	16,592 67
North Adams,	1894-6-7,	Williamstown line,	Easterly,	1.69	1.69	36,907 89
North Adams,	1900-1-2-3,	Boston & Maine Railroad bridge to Adams line,	Southerly,	2.32	2.09	
North Andover,	1900-2-4,	Lawrence line,	Southeasterly,	1.90	1.90	
North Andover,	1907,	Junction of Pleasant, Park and Court streets,	Southwesterly, . . . . .	.24	.24	34,677 39
North Andover,	1907,	Junction of Sutton and Clark streets to junction of Osgood and Park streets, . . . . .	- . . . .	.20	.20	
North Andover,	1910,	Northerly end of 1907 section,	Northeasterly,	1.04	1.04	
Northampton,	1894,	Hadley bridge,	Southwesterly, . . . . .	.56	.56	61,138 75
Northampton,	1897-8-9-1900-5,	Easthampton line,	Northerly,	1.47	1.47	
North Attleborough,	1894-5-6-7-9,	Bruce Avenue to Attleborough line,	Southwesterly,	3.60	3.60	24,168 18

Northborough (east), .	1897-8, .	Marlborough line, .	Southwesterly, .	1.33	1.33	27,763 30
Northborough (west), .	1900-2-4, .	Shrewsbury line, .	Easterly, .	2.19	2.19	
Northborough (south), .	1897, .	Westborough line, .	Northwesterly, .	.42	.42	
North Brookfield, .	1905-6-7-8, .	Junction of Ward and Gilbert streets, .	Southerly, .	1.82	1.82	31,284 54
North Brookfield, .	1910, .	Brookfield line, .	Northerly, .	.43	.43	
Northfield, .	1901-2, .	Near Mill Brook, .	Southerly, .	1.16	1.16	9,945 70
North Reading, ¹ .	1897-8-1901-3, .	Andover line to Reading line, .	Southerly, .	2.31	2.31	21,257 66
Norton, .	1903, .	Village to near railroad station, .	Easterly, .	.72	.72	
Norton, .	1904, .	Mansfield line, .	Southerly, .	.50	.50	9,944 75
Norton, .	1908-9, .	Attleborough line to Chartley village, .	Easterly, .	.79	.79	
Norwood, .	1897-9, .	Walpole line, .	Northerly, .	1.03	1.03	19,762 52
Norwood, .	1895-6, .	Westwood line, .	Southerly, .	1.02	1.02	
Oak Bluffs, .	1894-5-6, .	Saugokontacket bridge, .	Northerly, .	2.37	2.37	20,927 58
Orange, .	1894-5-7, .	Athol line, .	Westerly, .	2.18	2.18	52,768 95
Orange, .	1900-1-3-4-5, .	Erving line, .	Easterly, .	2.62	2.62	
Orleans, .	1900-1-4, .	Brewster line to Eastham line, .	Northeasterly, .	1.98	1.98	20,335 69
Orleans, ² .	1903-4-5, .	1¼ miles from Shattuck's Corner to Brewster line, .	Southeasterly and southerly, .	2.72	2.72	
Oxford, .	1906-7, .	Auburn line, .	Southwesterly, .	.85	.85	22,668 23
Oxford, ³ .	1908-9, .	Charlton line, .	Easterly, .	1.34	1.34	
Palmer, .	1899-1900-1, .	Tennyville to Monson line, .	Southeasterly, .	2.52	2.52	
Palmer, .	1905-8, .	Near Quabog River bridge to Warren line, .	Easterly, .	5.29	5.29	138,407 68
Palmer, ⁴ .	1906-8-9, .	Wilbraham line, .	Easterly, .	2.11	2.11	

¹ Exclusive of 1,200 feet at railroad crossing.

² Exclusive of 100 feet between stations 126+50 and 127+50.

³ Exclusive of 100 feet at bridge.

⁴ Exclusive of 1,500 feet in Monson.

TABLE SHOWING THE HIGHWAYS LAID OUT OR CONTRACTED FOR BY THE COMMISSION, ETC. — *Continued.*

TOWN OR CITY.	Year.	ROAD LAID OUT.			Length con- structed (Miles).	Con- struction Ex- penditures.
		From —	Direction.	Length (Miles).		
Paxton,	1895-6-7-8-1902,	Worcester line,	Northwesterly,	3.60	3.60	\$47,632 99
Pembroke,	1905,	North River bridge at Hanover line,	Southerly, . . . . .	.35	.35	2,943 64
Pepperell,	1907,	At Nashua River bridge,	Northwesterly, . . . . .	.07	.07	18,604 55
Pepperell,	1910,	Near Nashua River bridge,	Northwesterly, . . . . .	.76	.76	
Phillipston,	1897-8-1902-4-9,	Athol line to Templeton line,	Easterly and northeasterly,	2.78	2.78	29,547 83
Pittsfield,	1894-8-1901-2,	Hancock line,	Easterly,	2.38	2.38	80,462 35
Pittsfield,	1909,	Woodleigh Avenue,	Westerly, . . . . .	.67	.67	
Pittsfield,	1897-1906-7,	Dalton line,	Southwesterly,	2.37	2.37	78
Pittsfield,	1904-6,	South Mountain Road to Lenox line,	Southerly,	1.58	1.58	
Plainville,	1894-5,	North Attleborough line to Wrentham line,	Northerly,	1.81	1.81	64,398 73
Plymouth,	1894-5-6-7-8-1902-4,	Manomet village,	Northerly,	5.05	5.05	
Plymouth,	1907,	Manomet village,	Southerly, . . . . .	.88	.88	21,901 25
Plymouth,	1910,	End of 1907 section,	Southeasterly,	1.38	1.38	
Princeton,	1897-1900-2-3,	Princeton depot,	Easterly,	2.23	2.23	7,669 68
Provincetown,	1901-3,	Truro line to Allerton Street,	Westerly,	1.10	1.10	
Quincy,	1899,	Chubbuck Street to Fore River bridge,	Southeasterly, . . . . .	.49	.49	26,587 83
Quincy,	1902-9,	Braintree line,	Northerly, . . . . .	.95	.95	
Quincy,	1904,	Randolph line to Milton line,	Northerly,	1.23	1.23	13,265 20
Randolph,	1902-3-9,	Quincy line,	Southeasterly,	1.90	1.90	

Raynham, . . .	1901-2-3, . . .	Taunton line to Raynham village, . . .	Northeasterly, . . .	1.48	13,983 79
Reading, . . .	1899-1900, . . .	Stoneham line, . . .	Northerly, . . .	1.07	29,084 24
Reading, . . .	1902-3, . . .	North Reading line, . . .	Southerly, . . .	2.67	53,370 57
Rahoboth, . . .	1895-6-9-1903-5-6-7-8, . . .	Seekonk line, . . .	Easterly, . . .	6.03	58,613 49
Revere, . . .	1897-8, . . .	Boston line, . . .	Northeasterly, . . .	.58	33,200 55
Revere, . . .	1899, . . .	Saugus line, . . .	Southwesterly, . . .	.67	6,074 70
Richmond, . . .	1897-8-9-1901-2-3-4-5-6-7, . . .	Boston & Albany Railroad Station to Pittsfield line, . . .	Northerly, . . .	4.02	13,442 30
Rochester, . . .	1903, . . .	Marion line to Acushnet line, . . .	Westerly, . . .	5.27	16,662 27
Rochester, . . .	1909, . . .	Middleborough line to Wareham line, . . .	Southwesterly, . . .	.90	14,273 08
Rockland, . . .	1902-5-6, . . .	Abington line to Hanover line, . . .	Easterly, . . .	2.35	84,371 81
Rockport, . . .	1902-6, . . .	Gloucester line, . . .	Northerly, . . .	.94	8,977 41
Rockport, . . .	1910, . . .	Northerly end of 1906 section, . . .	Northerly, . . .	.66	18,080 66
Rowley, . . .	1906-7-8-9, . . .	Newbury line, . . .	Southwesterly, . . .	2.90	21,387 98
Russell, . . .	1894-5-6-7-8-9, . . .	Westfield line to Huntington line, . . .	Northeasterly, . . .	6.66	29,066 06
Rutland, . . .	1904, . . .	Holden line, . . .	Northwesterly, . . .	1.16	34,781 92
Salem, . . .	1901-9, . . .	Swampscott line, . . .	Northerly and northeasterly, . . .	1.40	48,863 05
Salisbury, . . .	1904-5, . . .	Town Creek, . . .	Northerly and southerly, . . .	1.43	
Salisbury, . . .	1910, . . .	Salisbury village to New Hampshire line, . . .	Northerly, . . .	2.41	
Sandwich, . . .	1897-8-1900-2, . . .	Barnstable line, . . .	Westerly, . . .	2.82	
Sandwich, . . .	1910, . . .	East Sandwich station, . . .	Easterly, . . .	.90	
Saugus, . . .	1899, . . .	Fox Hill bridge to Revere line, . . .	Southerly, . . .	1.49	
Saugus, . . .	1906, . . .	Melrose line, . . .	Southwesterly, . . .	1.60	
Scituate, . . .	1894-5-1900-3-6-8-9, . . .	Cohasset line, . . .	Southerly, . . .	.19	
Scituate, . . .	1910, . . .	Marshfield line, . . .	Northerly, . . .	4.67	
				.70	

TABLE SHOWING THE HIGHWAYS LAID OUT OR CONTRACTED FOR BY THE COMMISSION, ETC. — *Continued.*

TOWN OR CITY.	Year.	ROAD LAID OUT.			Length constructed (Miles).	Construction Expenditures.
		From —	Direction.	Length (Miles).		
Seekonk,	1900-1-2-4,	Rehoboth line to Rhode Island line,	Westerly,	2.76	2.76	\$18,690 96
Seekonk,	1910,	Near Perry Avenue, via Fall River Avenue,	Southeasterly,	1.50	.70	
Sharon,	1908,	Foxborough line,	Northeasterly, . . . . .	.64	.64	4,949 32
Shelburne,	1894-5-6,	Bridge Street to Colrain line,	Northeasterly	2.16	2.16	24,034 14
Shrewsbury,	1895-6-7-8-9-1900-4,	Worcester line to Northborough line,	Northeasterly,	4.86	4.86	48,854 60
Somerset,	1895-6-7-9-1900-1-2,	Slade's Ferry bridge,	Northerly,	4.50	4.50	
Somerset,	1910,	Northerly end of 1902 section,	Northerly, . . . . .	.88	.40	60,248 28
Somerset,	1903-4-9,	Slade's Ferry bridge to Swansea line,	Northwesterly,	2.40	2.40	
Somerset,	1909,	Slade's Ferry bridge to Brayton Avenue,	Northerly, . . . . .	.22	.22	
Somerville,	1908,	Medford line via Mystic Avenue,	Southeasterly,	1.16	1.16	35,775 12
Southampton,	1905-9,	Easthampton line,	Southwesterly and southerly,	.71	.71	13,918 98
Southborough,	1902-5,	Westborough line,	Easterly,	1.89	1.89	
Southborough,	1907,	Ashland line,	Westerly, . . . . .	.65	.65	22,147 60
Southborough,	1909,	Framingham line,	Southwesterly,	1.15	1.15	
Southbridge,	1902,	Charlton line,	Southwesterly, . . . . .	.91	.91	11,057 61
Southbridge,	1907,	Sturbridge line,	Easterly, . . . . .	.45	.45	
South Hadley,	1895-7-8-9-1900,	Granby line to South Hadley Falls,	Southwesterly,	2.42	2.42	44,895 24
South Hadley,	1903-4-9,	South Hadley Falls,	Northerly,	3.33	3.33	

	1897-1900-1,	Leicester line,	Westerly,	1.60	1.80	
Spencer,	1906,	Brookfield line,	Easterly,	.84	.84	39,655 12
Spencer,	1910,	Easterly end of 1908 section,	Easterly,	.59	.59	
Sterling,	1897-8,	Near town hall,	Southwesterly,	1.29	1.29	
Sterling,	1905-7-9,	Langester line,	Westerly and southwesterly,	1.84	1.84	35,529 15
Sterling,	1906-7,	Leominster line,	Southerly,	.56	.56	
Stockbridge,	1905-9,	Lee line at South Lee,	Easterly and westerly,	1.06	1.06	23,494 16
Stockbridge,	1906,	Lee line at East Street,	Southwesterly,	2.24	2.24	
Stoneham,	1897-8,	South Street,	Northerly,	.57	.57	14,875 79
Stoneham,	1900-1,	Reading line,	Southerly,	1.01	1.01	
Stoughton,	1902-3,	Canton line to Lincoln Street,	Southerly,	1.16	1.16	21,030 12
Stoughton, ^a	1904-5,	Easton line to Walnut Street,	Northerly,	2.14	2.14	
Sturbridge,	1897-1903-4-7-9,	Southbridge line,	Northwesterly,	2.36	2.36	29,214 22
Sudbury,	1897-8-1900-1-2-3,	Marlborough line to Wayland line,	Easterly,	5.11	5.11	36,071 86
Sunderland,	1897-1903-4-6-7-9,	Connecticut River bridge,	Southeasterly and southerly,	1.56	1.56	22,913 40
Sutton,	1899-1901-2,	Millbury line,	Southerly,	1.46	1.46	15,405 41
Sutton,	1903-4,	Douglas line at Manchaug,	Northerly,	.82	.82	
Swampscott,	1897-1900-1,	Salem line to Burrell Street,	Southwesterly,	1.49	1.49	29,433 53
Swansea,	1903-6-9,	Somerset line,	Northwesterly,	2.66	2.66	
Swansea,	1910,	Northerly end of 1909 section,	Northwesterly,	.69	.69	29,560 16
Swansea,	1903-7,	Myles River bridge,	Southeasterly and northwesterly,	1.93	1.93	

^a Exclusive of 250 feet at railroad bridge.

^a Hasam pavement.

¹ Exclusive of 175 feet at Seven Mile River.

TABLE SHOWING THE HIGHWAYS LAID OUT OR CONTRACTED FOR BY THE COMMISSION, ETC. — *Continued.*

TOWN OR CITY.	Year.	ROAD LAID OUT.			Length constructed (Miles).	Con- struction Ex- penditures.
		From —	Direction.	Length (Miles).		
Seekonk,	1900-1-2-4,	Rehoboth line to Rhode Island line,	Westerly,	2.76	2.76	\$18,690 96
Seekonk,	1910,	Near Perry Avenue, via Fall River Avenue,	Southeasterly,	1.50	.70	
Sharon,	1903,	Foxborough line,	Northeasterly, . . . . .	.64	.64	4,849 32
Shelburne,	1894-5-6,	Bridge Street to Colrain line,	Northeasterly,	2.16	2.16	24,024 14
Shrewsbury,	1895-6-7-8-9-1900-4,	Worcester line to Northborough line,	Northeasterly,	4.86	4.86	48,854 60
Somerset,	1895-6-7-8-9-1900-1-2,	Slade's Ferry bridge,	Northerly,	4.50	4.50	
Somerset,	1910,	Northerly end of 1902 section,	Northerly, . . . . .	.88	.40	60,248 28
Somerset,	1903-4-9,	Slade's Ferry bridge to Swansea line,	Northwesterly,	2.40	2.40	
Somerset,	1909,	Slade's Ferry bridge to Brayton Avenue,	Northerly, . . . . .	.22	.22	
Somerville,	1903,	Medford line via Mystic Avenue,	Southeasterly,	1.16	1.16	35,775 12
Southampton,	1905-9,	Easthampton line,	Southwesterly and southerly, . . . . .	.71	.71	13,918 98
Southborough,	1902-5,	Westborough line,	Easterly,	1.89	1.89	
Southborough,	1907,	Ashland line,	Westerly, . . . . .	.65	.65	22,147 60
Southborough,	1909,	Framingham line,	Southwesterly,	1.15	1.15	
Southbridge,	1902,	Charlton line,	Southwesterly, . . . . .	.91	.91	11,057 61
Southbridge,	1907,	Sturbridge line,	Easterly, . . . . .	.45	.45	
South Hadley,	1895-7-8-9-1900,	Granby line to South Hadley Falls,	Southwesterly,	2.42	2.42	44,895 24
South Hadley,	1903-4-9,	South Hadley Falls,	Northerly,	3.33	3.33	

	1897-1900-1.		Leicester line,		Westerly,	1.60	1.60
Spencer,							
Spencer, 1 ¹ .	1906,		Brookfield line,		Easterly,	.84	.84
Spencer,	1910,		Easterly end of 1906 section,		Easterly,	.59	.59
Sterling,	1897-8,		Near town hall,		Southwesterly,	1.29	1.29
Sterling,	1905-7-9,		Langester line,		Westerly and southwesterly,	1.84	1.84
Sterling,	1906-7,		Leominster line,		Southerly,	.56	.56
Stockbridge,	1905-9,		Lee line at South Lee,		Easterly and westerly,	1.06	1.06
Stockbridge,	1906,		Lee line at East Street,		Southwesterly,	2.24	2.24
Stoneham,	1897-8,		South Street,		Northerly,	.57	.57
Stoneham,	1900-1,		Reading line,		Southerly,	1.01	1.01
Stoughton,	1902-3,		Canton line to Lincoln Street,		Southerly,	1.16	1.16
Stoughton, ¹	1904-5,		Easton line to Walnut Street,		Northerly,	2.14	2.14
Sturbridge,	1897-1903-4-7-9,		Southbridge line,		Northwesterly,	2.36	2.36
Sudbury,	1897-8-1900-1-2-3,		Marlborough line to Wayland line,		Easterly,	5.11	5.11
Sunderland,	1897-1903-4-5-7-9,		Connecticut River bridge,		Southeasterly and southerly,	1.56	1.56
Sutton,	1899-1901-2,		Millbury line,		Southerly,	1.46	1.46
Sutton,	1903-4,		Douglas line at Manchaug,		Northerly,	.82	.82
Swampscott,	1897-1900-1,		Salem line to Burrell Street,		Southwesterly,	1.49	1.49
Swansea,	1903-6-9,		Somerset line,		Northwesterly,	2.66	2.66
Swansea,	1910,		Northerly end of 1909 section,		Northwesterly,	.69	.69
Swansea,	1903-7,		Myles River bridge,		Southeasterly and northwesterly,	1.93	1.93

¹ Exclusive of 178 feet at Seven Mile River.

¹ Haasam pavement.

¹ Exclusive of 250 feet at railroad bridge.

TABLE SHOWING THE HIGHWAYS LAID OUT OR CONTRACTED FOR BY THE COMMISSION, ETC. — *Continued.*

TOWN OR CITY.	Year.	ROAD LAID OUT			Length constructed (Miles).	Construction expenditures.
		From —	Direction.	Length constructed (Miles).		
Taunton,	1895-6-8-9-1900-1, . . .	Dighton line on Winthrop Street, . . .	Easterly,	2.94	2.94	\$42,993 00
Taunton,	1905-6,	Three Mile River Bridge,	Northeasterly,	1.07	1.07	
Taunton,	1907,	Railroad tracks on County Street, . . .	Southeasterly, . . . . .	.66	.66
Templeton,	1899-1901-2-3,	Gardner line at Otter River,	Westerly,	2.00	2.00	66,058 24
Templeton,	1905-6-7-8-9,	Junction of Main and Maple streets to Phillipston line,	Southwesterly,	3.69	3.69	
Tewksbury,	1900-1-2-3-4-5-6,	Lowell line to Wilmington line,	Southeasterly,	6.35	6.35	
Tisbury,	1894,	Vineyard Haven to West Tisbury line, . .	Southwesterly,	1.93	1.93	14,609 43
Townsend,	1896-7-8-9-1900-1, . . .	Groton line,	Northwesterly,	4.69	4.69	
Townsend, ¹	1907,	West Townsend village,	Westerly, . . . . .	.73	.73
Townsend,	1910,	Westerly end of 1907 section,	Southwesterly,55	.30	41,309 37
Truro,	1895-1906,	Wellfleet line via Kelley's Corner, . . .	Northerly,	3.16	3.16	
Tyngsborough,	1895-6,	Tyngsborough bridge to Lowell line, . .	Southeasterly,	2.95	2.95	
Tyngsborough,	1909,	New Hampshire line,	Southerly,	1.87	1.87	32,842 77
Tyngsborough,	1910,	Chelmsford line,	Northerly, . . . . .	.45	.45
Uxbridge,	1897-8-1901-3,	Blackstone line,	Northwesterly,	2.18	2.18	
Uxbridge,	1909,	Blackstone River,	Northwesterly,58	.58	26,182 76
Uxbridge,	1910,	End of 1909 section,	Northwesterly, . . . . .	.17	.17
Wales,	1901,	Brimfield line,	Southwesterly,	1.04	1.04	
Walpole (south),	1904-5-7-1900,	Norfolk line,	Northerly,	2.60	2.60	3,902 60
Walpole (north),	1897-8-1900,	Norwood line,	Southerly,	1.94	1.94	

[illegible]

1 Exclusive of 350 feet at Pearl Hill Brook.

TABLE SHOWING THE HIGHWAYS LAID OUT OR CONTRACTED FOR BY THE COMMISSION, ETC. — *Concluded.*

TOWN OR CITY.	Year.	ROAD LAID OUT.		Length constructed (Miles).	Con-struction Ex-penditures.
		From —	Direction.		
West Brookfield,	1899,	Ware line to Ware line,	Southwesterly, . . . . .	.15	-
West Brookfield,	1899-1900-1,	Brookfield line,	Northwesterly,	1.51	-
West Brookfield,	1905,	Warren line,	Easterly,	1.02	-
Westfield,	1894-6-8-9,	West Springfield line,	Westerly,	2.22	\$46,000 56
Westfield,	1898-9-1900-1-2,	Russell line,	Easterly,	3.59	
Westford,	1902-3,	Littleton line,	Northerly,	3.25	6,473 42
Westminster,	1894-5-6-7-8-9,	Fitchburg line,	Southwesterly,	3.00	55,123 55
Westminster,	1903,	Gardner line,	Easterly,	2.25	
West Newbury,	1895-6-7-1903-4-5-6-9,	Newburyport line to Groveland line,	Westerly and northeasterly,	5.09	58,578 41
Weston,	1898-9,	Wayland line to near Stony Brook,	Easterly,	3.15	16,209 94
Westport,	1894-6-7-8,	Dartmouth line,	Easterly,	4.25	45,369 28
West Springfield,	1895-6,	Top of Tatham Hill,	Easterly,	1.17	19,730 99
West Springfield,	1905-6,	Top of Tatham Hill,	Westerly, . . . . .	.76	
West Tisbury,	1895-6-7-1904,	Tisbury line to Chilmank line,	Southwesterly,	5.35	29,711 63
Westwood,	1899-1900,	Norwood line to Dedham line,	Northerly,	1.05	8,062 43
Weymouth,	1894,	Holbrook line to Abington line,	Easterly, . . . . .	.25	41,355 85
Weymouth,	1895-6-7,	Fore River to Back River,	Easterly,	1.75	
Weymouth,	1903-4-7-8,	Broad Street via Washington Street,	Southerly,	4.52	
Weymouth,	1910,	Abington line,	Northerly, . . . . .	.42	

Whately, ¹	1899-1901-2-3-4-5-6,	Deerfield line to Hatfield line,	Southerly,	3.89	32,601 73
Whitman,	1894-6-6,	Brookton line,	Easterly,	1.70	25,575 02
Wilbraham, ²	1894-6-6-1901-3-4,	Springfield line to Palmer line,	Easterly,	4.82	49,026 14
Williamburg,	1896-8-1901-3,	Goshen line,	Southeasterly,	2.65	34,688 22
Williamstown,	1907,	River Road from near village,	Southerly,	.13	35,052 73
Williamstown,	1895-6-8-1903,	North Adams line,	Westerly,	1.95	
Wilmington,	1907-8,	Tewksbury line,	Southeasterly and southerly,	1.18	21,559 88
Wilmington,	1910,	End of 1908 section,	Southeasterly,	.70	
Wilmington,	1910,	Near Boston & Maine Railroad depot,	Southeasterly,	.40	9,323 30
Winchendon,	1907,	Glen Allen Road via Maple Street,	Southwesterly,	1.35	
Winchendon,	1907,	Millers River bridge,	Southwesterly,	.35	-
Winchester,	1899-1900,	Arlington line to Woburn line,	Northeasterly,	1.96	11,837 95
Windsor,	1897-1902-3,	Cumington line,	Westerly,	.98	21,051 03
Windsor,	1906-7,	Peru Street via Main Road,	Southeasterly,	.88	
Woburn,	1900-1-2,	Winchester line to Burlington line,	Northwesterly,	2.03	13,765 91
Worcester,	1896-7,	Parton line,	Southeasterly,	1.35	
Worcester,	1897-1903,	Holden line,	Southerly,	1.50	47,322 64
Worcester,	1900-5,	West Boylston line,	Southwesterly and southerly,	1.22	
Wrentham,	1899-1900-1,	Plainville line,	Northerly,	2.23	45,724 38
Wrentham,	1897-8-1902,	Norfolk line,	Southeasterly,	1.86	
Yarmouth (north),	1894-5-6,	Barnstable line to Dennis line,	Easterly,	3.71	38,025 20
Yarmouth (south),	1895-6-7,	Barnstable line to Bass River bridge,	Easterly,	5.09	

¹ Exclusive of 1,793 feet at Wilbraham village.² Exclusive of 375 feet at railroad crossing and 800 feet at railroad bridge.

APPENDIX G.

TABLE SHOWING TOWNS AND CITIES IN WHICH WORK HAS BEEN DONE DURING THE YEAR 1910, AND THE RESIDENT ENGINEERS ON SUCH WORK, TOGETHER WITH DATES OF BEGINNING AND ENDING.

Town or City.	County.	Lay-out.	Resident Engineer.	Date of Contract.	Date of Beginning, 1910.	Date of Ending, 1910.
Agawam,	Hampden,	1909,	E. S. Bingham,	Aug. 10, 1909	April 18	May 7
Amherst,	Hampshire,	Surfacing,	W. G. Burns,	June 21, 1910	Sept. 19	Oct. 6
Andover,	Essex,	Oiling,	R. C. Heath,	Force account	Aug. 23	Aug. 30
Ashby,	Middlesex,	1910,	R. A. Veepar,	Aug. 23, 1910	Sept. 7	Dec. 8
Ashland,	Middlesex,	1910,	F. D. Sabin,	April 20, 1910	May 31	Sept. 13
Athol,	Worcester,	1909, bridge,	R. A. Veepar,	Oct. 20, 1909	March 30	July 2
Attleborough,	Bristol,	Oiling,	W. N. Secord,	July 21, 1910	Aug. 3	Sept. 14
Auburn,	Worcester,	Surfacing,	L. T. C. Loring,	June 23, 1910	July 20	Oct. 23
Barnstable,	Barnstable,	1910,	E. N. Briggs,	May 3, 1910	May 18	Aug. 18
Barre,	Worcester,	Surfacing,	W. G. Burns,	June 21, 1910	Aug. 9	Sept. 24
Becket,	Berkshire,	Surfacing,	G. R. Brown,	April 5, 1910	May 10	July 16
Beverly (North),	Essex,	Oiling,	R. C. Heath,	June 8, 1910	April 15	June 28
Beverly (East),	Essex,	Oiling,	R. C. Heath,	June 21, 1910	March 7	April 16
Blackstone,	Worcester,	1909,	F. D. Sabin,	Nov. 30, 1910	April 5	July 15
Bourne,	Barnstable,	1910,	H. O. Parker,	May 31, 1910	June 3	July 30
Bridgewater,	Plymouth,	Surfacing,	A. T. Edwards,	Force account	Aug. 11	Sept. 3

TABLE SHOWING TOWNS AND CITIES IN WHICH WORK HAS BEEN DONE, ETC. — *Continued.*

Town or City.	County.	Lay-out.	Resident Engineer.	Date of Contract.	Date of Beginning 1910.	Date of Ending, 1910.
Gloucester,	Essex,	Oiling,	R. C. Heath,	June 8, 1910	May 29	July 16
Greenfield,	Franklin,	1910,	W. G. Burns,	May 3, 1910	July 18	Dec. 2
Groveland,	Essex,	Oiling,	R. C. Heath,	Aug. 31, 1910	Aug. 15	Sept. 15
Hadley,	Hampshire,	Surfacing,	W. G. Burns,	June 21, 1910	Aug. 17	Oct. 6
Hamilton,	Essex,	1910,	G. N. Willis,	July 14, 1909	June 7	Aug. 6
Harvard,	Worcester,	1910,	H. M. McCue, D. H. Dickenson,	June 7, 1910	July 28	Dec. 20
Hatfield,	Hampshire,	1910,	R. W. Emerson, E. J. Nichols,	June 1, 1910	July 11	Nov. 19
Hatfield,	Hampshire,	1909,	E. S. Bingham,	Sept. 23, 1910	April 20	May 5
Haverhill,	Essex,	1909,	E. M. Stevens,	July 20, 1909	April 18	May 7
Haverhill,	Essex,	1910,	E. M. Stevens, F. H. Morris,	April 20, 1910	May 2	Oct. 21
Hingham,	Plymouth,	Oiling,	B. E. Gray, C. S. Tinkham,	July 6, 1910	July 11	Aug. 11
Holliston,	Middlesex,	1910,	F. D. Sabin,	June 8, 1910	Aug. 15	Dec. 6
Holyoke,	Hampden,	1910,	E. H. Smith,	April 12, 1910	April 20	Oct. 2
Ipswich,	Essex,	1910,	C. E. Norwood,	May 31, 1910	June 7	Sept. 17
Lakeville,	Plymouth,	1910,	E. M. Briggs, W. G. Addis,	Aug. 16, 1910	Sept. 27	Dec. 16
Leicester,	Worcester,	Surfacing,	L. T. C. Loring,	Aug. 3, 1909	Jan. 1	June 6
Lenox,	Berkshire,	Oiling,	F. H. Jayner,	July 6, 1910	July 16	Aug. 15
Lexington,	Middlesex,	Oiling,	R. C. Heath,	Force account	Sept. 1	Sept. 20
Lunenburg,	Worcester,	1910,	R. A. Vesper,	May 10, 1910	June 7	Nov. 18
Lynn,	Essex,	Tar spraying,	R. C. Heath,	Force account	May 5	May 17

Marblehead,	Essex,	1910, causeway,	P. H. Everett,	July 28, 1910	Aug. 1	Dec. 31
Marshfield,	Plymouth,	1910,	W. G. Addis,	April 21, 1910	May 11	Oct. 31]
Merrimac,	Essex,	1910,	F. H. Morris,	April 20, 1910	May 2	Oct. 21
Middleborough,	Plymouth,	Surfacing,	H. C. Holden,	Aug. 16, 1910	Sept. 5	Oct. 15
Milford,	Worcester,	1910,	F. D. Sabin,	Aug. 23, 1910	Sept. 16	Dec. 5
Montague,	Franklin,	1910,	E. M. Stevens,	Oct. 4, 1910	Oct. 10	Nov. 17
Natick,	Middlesex,	Surfacing,	R. W. Coburn, H. M. McCue,	Aug. 9, 1910	Aug. 17	Oct. 12
Newbury,	Essex,	1909, bridge,	F. H. Morris,	Sept. 29, 1909	Jan. 1	July 2
Newburyport,	Essex,	Surfacing,	R. C. Heath,	Aug. 31, 1910	Aug. 15	Sept. 15
Norfolk,	Norfolk,	Oiling,	W. N. Secord,	Aug. 3, 1910	Aug. 11	Sept. 15
Northampton,	Hampshire,	Surfacing,	E. H. Smith,	June 21, 1910	Sept. 26	Oct. 26
North Andover,	Essex,	1910,	A. E. Tarbell, H. M. Davis,	May 31, 1910	June 2	Oct. 5
North Middleborough,	Bristol,	Surfacing,	W. N. Secord, C. S. Tinkham,	July 21, 1910	Aug. 3	Oct. 1
North Brookfield,	Worcester,	1910,	L. T. C. Loring,	May 3, 1910	June 22	Aug. 15
North Reading,	Middlesex,	Oiling,	R. C. Heath,	Force account	May 31	Aug. 16
Norwood,	Norfolk,	Oiling,	C. S. Tinkham, W. N. Secord,	June 8, 1910	June 22	July 29
Palmer,	Hampden,	Surfacing,	G. S. Lawrence,	Aug. 24, 1910	Oct. 29	Dec. 7
Palmer,	Hampden,	1909,	E. J. Nichols,	Aug. 24, 1909	Jan. 1	June 18
Paxton,	Worcester,	Surfacing,	G. L. Lawrence,	June 16, 1909	May 23	July 2
Pepperell,	Middlesex,	1910,	R. A. Vesper,	May 31, 1910	June 13	Aug. 20
Phillipston,	Worcester,	1909,	R. A. Vesper,	June 22, 1909	May 24	Sept. 30
Pittsfield,	Berkshire,	1909,	D. H. Dickenson,	Aug. 3, 1909	April 11	May 4
Pittsfield,	Berkshire,	Surfacing,	F. H. Jayner,	July 6, 1910	July 16	Aug. 13
Plymouth,	Plymouth,	1910,	W. G. Addis,	May 31, 1910	Sept.	Nov. 1

TABLE SHOWING TOWNS AND CITIES IN WHICH WORK HAS BEEN DONE, ETC. — *Concluded.*

Town or City.	County.	Lay-out.	Resident Engineer.	Date of Contract.	Date of Beginning 1910.	Date of Ending 1910.
Quincy,	Norfolk,	1909,	H. O. Parker,	Nov. 11, 1909	April 11	June 22
Quincy,	Norfolk,	Oiling,	W. N. Seoord,	May 25, 1910	May 28	June 16
Randolph,	Norfolk,	Oiling,	W. N. Seoord,	May 25, 1910	May 28	June 16
Reading (north),	Middlesex,	Oiling,	R. C. Heath,	Force account	Aug. 3	Aug. 10
Reading (south),	Middlesex,	Oiling,	R. C. Heath,	Force account	July 30	Aug. 2
Rockport,	Essex,	1910,	F. H. Morris,	Sept. 13, 1910	Sept. 20	Dec. 10
Rockport,	Essex,	Oiling,	R. C. Heath,	June 8, 1910	May 29	July 16
Russell,	Hampden,	Surfacing,	E. S. Bingham,	Aug. 16, 1910	July 28	Sept. 13
Salem,	Essex,	Oiling,	R. C. Heath,	Force account	May 21	June 18
Salisbury,	Essex,	1910,	F. H. Morris, E. S. Clark,	May 17, 1910	May 31	Sept. 12
Sandwich,	Barnstable,	1910,	C. Upham,	Aug. 30, 1910	Sept. 27	Dec. 5
Scituate,	Plymouth,	1910,	W. G. Addis,	April 12, 1910	April 14	June 22
Scituate,	Plymouth,	Oiling,	B. E. Gray,	Aug. 3, 1910	Aug. 8	Sept. 7
Seekonk,	Bristol,	1910,	W. M. Stodder,	Oct. 3, 1910	Oct. 31	Dec. 17
Somerset,	Bristol,	1910,	W. M. Stodder,	July 26, 1910	Oct. 31	Dec. 21
Southborough,	Worcester,	1909,	L. T. C. Loring,	Aug. 17, 1909	April 12	May 21
Spencer,	Worcester,	1910,	L. T. C. Loring,	April 12, 1910	May 16	July 20
Stoneham,	Middlesex,	Oiling,	R. C. Heath,	Force account	Oct. 29	Dec. 13
Stoughton,	Norfolk,	Oiling,	C. S. Tinkham,	Force account	May 24	July 14
Sudbury,	Middlesex,	Oiling,	R. C. Heath,	Aug. 31, 1910	Aug. 19	Sept. 3

Swampscott,	Essex, . . .	Oiling,	R. C. Heath,	Force account	June 17	June 23
Sutton, . . .	Worcester,	Surfacing,	A. D. Dudley,	Sept. 21, 1910	Oct.	Nov. 26
Swanee,	Bristol,	1910, . . .	W. M. Stodder,	June 15, 1910	June 24	Oct. 15
Templeton, . .	Worcester,	1909, . . .	R. A. Vesper,	June 22, 1909	May 24	Sept. 30
Townsend, . . .	Middlesex,	1910, . . .	R. A. Vesper,	Aug. 23, 1910	Sept. 7	Dec. 8
Tyngsborough,	Middlesex,	1910, . . .	D. H. Dickenson,	Aug. 9, 1910	Aug. 23	Oct. 29
Uxbridge,	Worcester,	1909, . . .	L. T. C. Loring,	July 21, 1909	Aug. 1	Oct. 4
Walpole,	Norfolk,	Oiling,	W. N. Seoord,	June 8, 1910	June 22	July 29
Ware, . . .	Hampshire,	1910, . . .	W. G. Burna,	June 15, 1910	July 20	Oct. 20
Wareham,	Plymouth,	1910, . . .	H. O. Parker,	July 19, 1910	Aug. 1	Oct. 22
Warren, . . .	Worcester,	Surfacing,	G. L. Lawrence,	Aug. 16, 1910	Sept. 20	Nov. 2
Wayland,	Middlesex,	Oiling,	R. C. Heath,	Force account	July 19	Aug. 18
Wellesley,	Norfolk,	Surfacing,	R. W. Coburn, H. M. McCue and D. H. Dickenson.	Aug. 9, 1910	Aug. 17	Oct. 12
Wenham,	Essex, . . .	Oiling,	R. C. Heath,	June 21, 1910	July 8	July 16
West Bridgewater,	Plymouth,	Oiling,	A. T. Edwards,	Force account	July 11	Aug. 19
West Newbury,	Essex, . . .	Oiling,	R. C. Heath,	Aug. 31, 1910	Aug. 15	Sept. 15
Weston,	Middlesex,	Oiling,	R. C. Heath,	Aug. 31, 1910	Aug. 6	Aug. 30
Weymouth, . . .	Norfolk,	Oiling,	B. E. Gray, . .	June 8, 1910	June 24	July 9
Whitman, . . .	Plymouth,	Surfacing,	E. N. Briggs,	Aug. 23, 1910	Sept. 3	Nov. 7
Wilbraham, . .	Hampden,	Surfacing,	W. G. Burna,	Aug. 23, 1910	Aug. 29	Nov. 2
Wilmington, . .	Middlesex,	1910, . . .	D. H. Dickenson, C. H. Norton,	June 21, 1910	July 14	Dec. 14
Woburn, . . .	Middlesex,	Oiling,	R. C. Heath,	Force account	Aug. 4	Sept. 10
Worcester, . . .	Worcester,	Surfacing,	G. L. Lawrence,	June 16, 1909	May 23	July 2
Wrentham, . . .	Norfolk,	Oiling,	W. N. Seoord,	Aug. 3, 1910	Aug. 11	Sept. 15

APPENDIX H.

SHOWING CONTRACT PRICES ON

TOWN OR CITY.	Contract Number.	Contractor.	BITUMINOUS SURFACING.		EXCAVATION.			Portland Cement concrete Masonry.
			Oil (Square Yard).	Tar (Square Yard).	All Kinds (Cubic Yard).	Borrow (Cubic Yard).	Ledge (Cubic Yard).	
Attleborough-North Attleborough.	1372	Alger & Macomber, .	\$0 05 ¹	-	-	-	-	-
Auburn,	1368	Worcester Broken Stone Company.	06 ¹	-	-	-	-	-
Barnstable,	1343	D'Ippolito & Di Pietro,	-	-	\$0 45	\$0 65	\$2 00	\$10 00
Barre,	1361	Francis J. Mague, .	\$12	-	-	-	-	-
Becket,	1333	Lane Construction Corporation.	-	-	50	60	-	-
Becket-Lee,	1402	John W. Polcaro, .	\$11	-	-	-	-	-
Bourne,	1350	Edward J. Rourke, .	-	-	45	55	2 00	10 00
Brimfield,	1369	Worcester Broken Stone Company.	-	-	65	-	2 00	-
Buckland,	1396	Lane Construction Corporation.	-	-	-	-	-	-
Charlton,	1410	Lane Construction Corporation.	-	-	50	55	2 00	9 00
Chelmsford-Tyngsborough.	1383	Harvey W. Tarbell, .	\$22	-	50	49	2 00	8 00
Cheshire,	1360	Michael L. Camarco, .	08	-	49	\$1 15	2 00	8 00
Chester,	1337	Michael L. Camarco, .	-	-	39	49	1 51	8 50
Chester, bridge,	1399	Coleman Bros., . .	-	-	60	50	3 50	11 00
Deerfield,	1397	Lane Construction Corporation.	10	-	-	-	-	-
Deerfield,	1414	Jose Morrell, . . .	\$170	-	37	65	2 00	6 50
Dighton,	1385	Giovannini & Di Cicco,	-	-	50	65	2 00	10 00
Dighton (surfacing),	1413	Herbert E. Cushing, .	-	-	-	-	-	-
Douglas-Sutton,	1409	Richmond F. Hudson, .	-	-	70	-	2 00	-
Easthampton-Northampton.	1362	Francis J. Mague, .	-	-	55	-	-	-
East Longmeadow,	1338	Richmond F. Hudson, .	-	-	50	60	2 00	10 00
Erving,	1406	Luigi C. Carchia, .	-	-	60	\$175	2 00	\$18 50
Falmouth,	1342	Lane Quarry Company,	\$125	-	60	-	-	10 00
Framingham-Ashland,	1339	Charles E. Horne, .	\$11	-	50	78	1 50	9 00

¹ Exclusive of asphaltic oil.² Eight-inch clay pipe.³ Ten-inch clay pipe.⁴ Twelve-inch clay pipe.⁵ Including sand.⁶ Screened macadam (per cubic yard).⁷ Including gravel surfacing.⁸ Waterproofing.

APPENDIX H.

STATE ROADS DURING 1910.

Shaping (Square Yard).	BROKEN STONE.		PIPE CULVERTS (PER LINEAL FOOT).						Fencing (Lineal Foot).	Side Drains (Lineal Foot).	Stone Filling for Under-drains (per Cubic Yard).	Bounds (Each).	Catch-basins (Each).
	Local (Ton).	Trap (Ton).	CLAY.			IRON.							
			Twelve-inch.	Eighteen-inch.	Twenty-four-inch.	Twelve-inch.	Eighteen-inch.	Twenty-four-inch.					
-	\$0 75	\$2 10	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	1 55	-	\$0 40	\$0 57	\$0 70	-	-	-	\$0 30	-	\$0 85	\$2 00	\$30 00
-	-	2 40	-	-	-	-	-	-	-	-	-	-	-
-	1 30	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	2 20	\$0	-	-	-	-	-	35	-	-	2 00	35 00
-	1 70	\$1 00	-	-	-	-	-	-	-	-	90	-	-
-	-	2 20	-	-	-	-	-	-	-	-	-	-	-
-	1 35	-	75	1 50	-	-	-	-	30	-	80	2 00	-
-	-	1 80	60	90	\$50	-	-	-	30	-	-	1 50	30 00
-	-	-	-	-	-	\$2 45	-	-	32	-	1 09	2 25	-
-	-	1 75	-	-	-	2 45	-	-	29	-	95	2 00	-
\$1 00	\$3 00	-	-	-	-	3 00	\$1 50	-	-	-	-	-	-
-	2 20	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	1 25	-	\$1 00	26	-	-	1 50	27 50
-	1 50	-	70	\$60	\$50	\$75	-	-	29	-	1 00	1 75	30 00
-	1 65	-	-	-	-	-	-	-	-	-	-	-	-
-	\$1 10	2 35	-	-	-	-	-	-	-	-	1 40	-	-
-	2 45	-	-	-	-	-	-	-	-	-	1 15	-	-
-	-	2 25	80	-	-	2 00	-	-	40	-	1 00	2 00	-
-	-	-	-	-	-	2 00	-	-	25	-	1 00	2 00	-
-	-	-	\$60	\$70	-	-	-	-	30	-	-	2 00	35 00
-	-	-	75	1 50	\$80	-	-	-	30	-	-	2 00	30 00

⁹ Bridge excavation.¹⁰ Rock embankment.¹¹ Gravel (per cubic yard).¹² Ten-inch iron pipe.¹³ Fifteen-inch clay pipe.¹⁴ Gravel.¹⁵ Excepting steel rods.¹⁶ Oil to be furnished by the commission.

SHOWING CONTRACT PRICES ON

TOWN OR CITY.	Contract number.	Contractor.	BITUMINOUS SURFACING.		EXCAVATION.			Portland Cement Concrete Masonry.
			Oil (Square Yard).	Tar (Square Yard).	All Kinds (Cubic Yard).	Borrow (Cubic Yard).	Ledge (Cubic Yard).	
Franklin,	1407	Charles E. Horne, . .	\$80 07	-	\$0 50	\$0 95	\$2 50	\$10 00
Greenfield,	1344	Town,	\$70	-	45	50	1 75	49 00
Groveland-West Newbury- Newburyport.	1401	Walter Cressy, . . .	105	-	-	-	-	-
Hadley,	1363	Lane Construction Cor- poration.	\$11	-	-	-	-	-
Harvard,	1356	John A. Gaffey, . . .	-	-	50	53	2 00	10 00
Hatfield,	1355	Town,	-	\$1 00	55	55	2 00	11 50
Haverhill-Merrimac, . .	1340	Luigi C. Carchia, . .	-	-	49	1 00	2 00	6 50
Hingham-Cohasset, . .	1370	Herbert L. Thomas, . .	06½ ¹² , 105½ ¹²	-	-	-	-	-
Holliston,	1382	Charles E. Horne, . .	106	-	65	1 09	2 50	9 50
Holyoke,	1334	Giovannini & Di Cicco,	-	-	47	52	1 50	8 00
Ipswich,	1351	John A. Gaffey, . . .	\$11½	-	50	55	1 50	10 00
Lakeville,	1390	H. L. Thomas, . . .	107	-	50	50	2 00	10 00
Lenox-Pittsfield, . . .	1371	Lane Construction Cor- poration.	110	-	-	-	-	-
Lunenburg,	1346	L. C. Carchia, . . .	-	-	55	80	2 00	8 00
Marblehead,	1377	Michael McDonough, .	15	-	60	50	-	6 25 5 90
Marshfield,	1341	Town,	\$10	-	45	175	2 00	9 00
Methuen-Lawrence-Haver- hill.	1404	Francis J. Mague, . .	07	-	-	-	-	-
Middleborough,	1386	Town,	105½	-	-	-	-	-
Milford,	1393	Henry M. McBride, . .	10	-	55	80	2 25	8 50
Montague,	1411	Town,	-	-	50	65	-	8 00
Newton,	1375	City,	105½	-	-	-	-	-
Norfolk-Wrentham, . .	1378	Alger & Macomber, . .	05½	-	-	-	-	-
North Andover,	1352	Edward Adams, . . .	105	-	50	60	5 00	8 00
North Brookfield, . . .	1345	Town,	-	-	50	-	1 70	10 00
Norwood-Walpole, . . .	1359	Alger & Macomber, . .	05½	-	-	-	-	-
Palmer,	1398	Worcester Broken Stone Company.	-	-	70	-	1 00	-
Pepperell,	1353	Charles E. Horne, . .	-	-	55	70	2 00	11 00
Plymouth,	1354	Lane Quarry Company,	\$30	-	60	-	2 00	12 50
Randolph-Quincy, . . .	1349	Herbert L. Thomas, . .	05½	-	-	-	-	-
Rockport,	1408	Tony Leo,	-	-	60	72	2 00	9 00

¹ Exclusive of asphaltic oil.² Ten-inch clay pipe.³ Gravel (per cubic yard).⁴ Excepting steel rods.⁵ Eight-inch iron pipe.⁶ Including sand.⁷ Ten-inch iron pipe.⁸ Fifteen-inch clay pipe.⁹ Rock embankment.¹⁰ Piles.¹¹ Cobble-paved gutters.¹² Oiling old macadam.

STATE ROADS DURING 1910 — *Continued.*

Shaping (Square Yard).	BROKEN STONE.		PIPE CULVERTS (PER LINEAL FOOT).						Fencing (lineal Foot).	Side Drains (lineal Foot).	Stone Filling for Under-drains (per Cubic Yard).	Bounds (Each).	Catch-basins (Each).
	Local (Ton).	Trap (Ton).	CLAY.			IRON.							
			Twelve-inch.	Eighteen-inch.	Twenty-four-inch.	Twelve-inch.	Eighteen-inch.	Twenty-four-inch.					
-	-	-	\$0 75	\$1 50	\$0 60	-	-	-	\$0 30	-	-	\$2 00	\$35 00
-	-	-	-	-	-	\$2 00	\$1 75	-	30	-	-	1 75	30 00
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	\$2 15	-	-	-	-	-	-	-	-	-	-	-
\$1 00	-	-	75	1 50	\$1 00	-	-	-	30	-	-	2 00	-
10 00	-	2 20	75	-	-	2 50	-	-	35	-	-	2 00	25 00
-	-	-	55	1 05	245	\$90	-	-	30	\$0 50	\$1 00	2 00	30 00
-	\$1 75	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	75	1 50	-	-	-	-	30	-	90	2 00	35 00
-	-	1 45	-	-	-	2 10	-	-	27	-	90	1 50	35 00
\$1 05	-	-	-	1 50	-	-	-	-	30	-	-	1 75	-
-	1 49	-	70	1 50	-	2 25	72 00	\$1 75	30	-	1 10	2 00	30 00
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	1 20	-	-	-	-	2 50	-	-	30	-	-	2 50	30 00
15 50	1 50	\$1 00	80	-	-	-	-	-	1670	1770	-	-	40 00
1160	-	-	75	\$1 00	-	\$1 25	-	-	30	-	85	1 50	30 00
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	1 85	-	-	-	-	-	-	-	-	-	-	-	-
-	1 75	-	65	-	-	2 25	-	-	30	-	75	2 00	-
-	2 00	-	-	-	-	2 25	-	-	25	-	-	2 00	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
2185	1 65	1190	80	\$1 08	-	22 85	-	-	40	-	1 00	2 00	-
-	-	2 05	80	-	-	-	-	-	30	-	95	2 00	-
-	-	2 00	-	-	-	-	-	-	-	-	-	-	-
-	231 50	2 45	-	-	-	-	-	-	-	-	1 25	-	-
\$1 30	-	-	-	-	-	72 00	-	-	30	-	-	2 00	25 00
-	-	-	1470	2 00	3 00	-	-	-	30	-	-	3 00	35 00
-	-	-	-	-	-	-	-	-	-	-	-	-	-
1160	-	1 70	75	-	-	2 25	23 00	-	30	-	-	2 00	30 00

¹⁸ Oil to be furnished by the commission.¹⁴ Eight-inch clay pipe.¹⁵ Granolithic sidewalk.¹⁶ Iron pipe fence.¹⁷ Granolithic curbing.¹⁸ Including gravel surfacing.¹⁹ Asphaltolene (per square yard).²⁰ Oiling, heating and teaming (per gallon.)²¹ Sand.²² Sixteen-inch iron pipe.²³ Screened macadam (per cubic yard).

SHOWING CONTRACT PRICES ON

TOWN OR CITY.	Contract Number.	Contractor.	BITUMINOUS SURFACING.		EXCAVATION.			Portland Cement Concrete Masonry.
			Oil (Square Yard).	Tar (Square Yard).	All Kinds (Cubic Yard).	Borrow (Cubic Yard).	Ledge (Cubic Yard).	
Rockport-Gloucester-Beverly.	1357	Walter Cressy, . . .	\$0 06½	-	-	-	-	-
Russell,	1389	Lane Construction Corporation.	117	-	-	-	-	-
Salisbury,	1347	James E. Watkins, . .	211	-	\$0 49	\$0 90	\$1 50	\$8 00
Sandwich,	1400	Lane Quarry Company,	130	-	60	60	-	10 00
Scituate,	1335	Richmond F. Hudson, .	210	-	30	70	30	-
Scituate (surfacing), .	1379	Herbert L. Thomas, . .	05½	-	-	-	-	-
Seekonk, ²	1412	Town,	-	-	-	-	-	-
Somerset,	1380	Fall River Gas Works,	-	10\$03½	-	-	-	-
Somerset,	1376	Town,	-	-	40	45	2 00	8 00
Somerville-Medford, .	1374	Barrett Manufacturing Company.	1210	-	-	-	-	-
Spencer,	1336	Lane Construction Corporation.	212	-	60	60	1 00	15 00
Swansea,	1365	Town,	05½	-	45	1265	2 00	110 00
Townsend-Ashby, . .	1392	David H. Damon, . .	-	-	52	55	2 25	10 00
Ware,	1366	Town,	110	-	50	50	1 75	10 00
Wareham,	1373	Thomas Whalen & Co.,	10	-	50	65	3 00	12 00
Warren,	1391	Lane Construction Corporation.	-	-	65	-	2 00	-
Wellesley-Natick, . .	1384	Richmond F. Hudson, .	-	-	70	70	-	-
Wenham-Beverly, . .	1367	Walter Cressy, . . .	06½	-	-	-	-	-
Weymouth,	1358	Herbert L. Thomas, . .	06½	2005½	-	-	-	-
Whitman,	1395	Herbert L. Thomas, . .	071½	16	-	-	-	-
Wilbraham,	1394	H. I. Peer,	05	-	-	-	1293	-
Wilmington,	1364	Francis J. Mague, . .	1010	-	50	60	1 50	149 00
Winchester - Burlington - Billerica-Woburn, .	1415	Harvey W. Tarbell, . .	1405½	-	-	-	-	-

¹ Exclusive of asphaltic oil.² Including sand.³ Including gravel surfacing.⁴ Ten-inch clay pipe.⁵ Ten-inch iron pipe.⁶ Eight-inch clay pipe.⁷ Clay binder.⁸ Rock embankment.⁹ Lump sum, \$5,500.¹⁰ Water gas tar (per gallon).

STATE ROADS DURING 1910 — *Concluded.*

Shaping (Square Yard).	BROKEN STONE.		PIPE CULVERTS (PER LINEAL FOOT).						Fencing (Lineal Foot).	Side Drains (Lineal Foot).	Stone Filling for Under-drains (per Cubic Yard).	Bounds (Each).	Catch-basins (Each).
	Local (Ton).	Trap (Ton).	CLAY.			IRON.							
			Twelve-inch.	Eighteen-inch.	Twenty-four-inch.	Twelve-inch.	Eighteen-inch.	Twenty-four-inch.					
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	\$0 60	\$0 50	-	\$1 85	\$1 50	-	\$0 29	-	-	\$1 45	\$28 00
-	-	-	90	1 75	\$0 65	-	-	-	32	-	\$1 10	1 50	35 00
-	\$2 00	-	-	-	-	-	-	-	30	-	\$1 00	2 00	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	1 60	-	75	\$65	\$60	11 10	-	-	25	-	-	1 50	25 00
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	\$2 00	-	-	-	2 50	-	-	30	-	75	1 50	-
-	1 45	-	75	-	-	2 00	-	-	30	-	85	1 50	30 00
-	1 60	-	-	-	-	2 20	12 75	-	33	-	-	2 00	-
12 \$1 00	-	-	11 00	-	-	2 25	12 75	-	30	-	17 75	2 00	-
-	-	2 25	-	-	-	-	-	-	30	-	-	1 50	35 00
-	12 11 20	2 10	-	-	-	-	-	-	-	-	1 00	-	-
-	12 1 50	2 35	-	-	-	-	-	-	-	12 40 70	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	2 40	-	-	-	-	-	-	-	-	-	-	-	-
-	2 20	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	1 70	70	1 40	12 90	40	-	-	30	-	-	1 50	30 00
-	-	-	-	-	-	-	-	-	-	-	-	-	-

¹¹ Fifteen-inch clay pipe.¹² Four applications.¹³ Gravel.¹⁴ Excepting steel rods.¹⁵ Sixteen-inch iron pipe.¹⁶ Gravel (per cubic yard).¹⁷ Bridge excavation.¹⁸ Screened macadam (per cubic yard).¹⁹ Cobble-paved gutters.²⁰ Oiling old macadam.

APPENDIX I.

STATEMENT OF CLAIMS AGAINST THE COMMISSION.

[As required by Section 5, Chapter 18 of the Revised Laws.]

NAME.	Residence.	Nature of Claim.
Bishop, Emeline, . .	Rowley, . .	Damages due to construction of State highway in Ipswich.
Cooper, Frederic P., .	Attleborough, .	Damages due to construction of State highway in Attleborough.
Donovan, John, . .	Ipswich, . .	Damages due to construction of State highway in Ipswich.
Flagg, Lucretia T., .	Northampton, .	Damages due to construction of State highway in Northampton.
Hill, Everett, . .	Charlton, . .	Damages due to construction of State highway in Charlton.
Lincoln, Benj. A., .	Taunton, . .	Damages due to construction of State highway in Taunton.
McLaughlin, Nancy M., .	Dover, . .	Damages due to construction of State highway in Dover.
Nourse, Joseph P., .	Marlborough, .	Damages due to construction of State highway in Marlborough.
Perley, Osborne, . .	Ipswich, . .	Damages due to construction of State highway in Ipswich.
Reed, William H., .	Gloucester, . .	Damages due to accident alleged to have occurred on State highway in Gloucester.
Seabury, Phœbe W., .	Dartmouth, . .	Damages due to construction of State highway in Dartmouth.
Sullivan, Kate, . .	Millbury, . .	Damages due to construction of State highway in Millbury.
Taft, Kate P., . .	Northampton, .	Damages due to construction of State highway in Northampton.
Talbot, Joseph, . .	Taunton, . .	Damages due to construction of State highway in Taunton.
Warren, Alice E. M., .	Auburn, . .	Damages due to construction of State highway in Auburn.

APPENDIX J.

MAINTENANCE.

Table showing the Amounts expended for Repair and Maintenance, the Cost per Mile for Maintenance during 1910, the Cost per Mile per Year on Each Road, the Number of Miles under Maintenance and the Amounts to be assessed upon Municipalities for Maintenance under Chapter 47 of the Revised Laws.

TOWN OR CITY.	AMOUNTS EXPENDED.						Total expended.	EXPENDED PER MILE IN 1910.			Cost per Mile per Year.	Length under Maintenance (Miles).	Amount to be assessed on Cities and Towns.
	FROM REVENUE APPROPRIATION.			FROM MOTOR VEHICLE FEES FUND.									
	During 1910.		Total.	During 1910.		Total.							
	To 1910.			To 1910.									
Abington, . . .	\$1,221 36	\$261 73	\$1,483 09	-	-	-	\$1,483 09	\$77 66	-	\$77 66	\$70 22	3.37	\$168 50
Acton, . . .	2,866 91	681 30	3,548 21	-	\$3,112 68	\$3,112 68	6,660 89	126 64	\$578 57	705 20	76 16	5.38	269 00
Acushnet, . . .	4,681 22	247 68	4,928 90	-	-	-	4,928 90	72 63	-	72 63	155 09	3.41	170 50
Adams, . . .	1,343 84	223 87	1,567 71	-	-	-	1,567 71	110 28	-	110 28	149 16	2.03	101 50
Agawam, . . .	1,073 81	170 84	1,244 65	\$1,448 33	521 00	1,969 33	3,213 98	55 11	168 06	223 17	95 86	3.10	155 00
Amesbury, . . .	1,436 75	455 94	1,892 69	60	18 40	19 00	1,911 69	150 97	6 09	157 06	94 54	3.02	151 00
Amherst, . . .	813 47	217 90	1,031 37	-	1,530 74	1,530 74	2,562 11	224 64	1,578 08	1,807 62	128 44	.97	48 50
Andover, . . .	11,254 36	510 94	11,765 30	980 83	2,298 94	3,279 77	15,045 07	121 94	548 67	670 61	258 35	4.19	209 50
Ashby, . . .	7,179 54	192 53	7,372 07	19 25	-	19 25	7,391 32	53 93	-	53 93	164 48	3.57	178 50
Ashfield, . . .	3,042 84	63 48	3,106 32	220 59	-	220 59	3,326 91	33 43	-	39 43	159 78	1.61	63 48
Ashland, . . .	584 36	50 19	634 55	-	-	-	634 55	15 68	-	15 68	65 55	3.20	50 19

Table showing the Amounts expended for Repairs, Maintenance, etc. — Continued.

TOWN OR CITY.	AMOUNTS EXPENDED.						Total expended.	EXPENDED PER MILE IN 1910.			Cost per Mile per Year.	Length under Maintenance (Miles).	Amount to be assessed on Cities and Towns.
	FROM REVENUE APPROPRIATION.			FROM MOTOR VEHICLE FEES FUND.				Total.	From Revenue Appropriation.	From Motor Vehicle Fees Fund.			
	To 1910.	During 1910.	Total.	To 1910.	During 1910.	Total.							
Athol,	\$7,109 53	\$405 56	\$7,515 09	-	-	-	\$7,515 09	\$130 82	-	\$130 82	\$247 61	3.10	\$155 00
Attleborough,	3,891 34	652 30	4,543 64	-	\$1,603 15	\$1,603 15	6,146 79	192 42	\$472 90	665 32	185 60	3.39	169 50
Auburn,	7,672 96	7,113 33	14,786 29	\$8,966 09	1,601 16	10,567 25	25,353 54	1,347 22	303 25	1,650 47	273 30	5.28	264 00
Barnstable,	3,510 77	622 82	4,133 59	-	-	-	4,133 59	62 77	-	62 77	80 11	9.92	496 00
Barre,	1,614 40	7,473 86	9,088 26	104 98	15 04	120 02	9,208 28	2,586 11	5 20	2,591 31	319 55	2.89	144 50
Becket,	1,344 31	1,388 77	2,733 08	143 60	8,943 30	9,086 90	11,819 98	225 82	1,454 19	1,680 01	173 96	6.15	-
Bedford,	871 35	136 21	1,007 56	1 99	-	1 99	1,009 55	82 55	-	82 55	75 98	1.65	82 50
Belchertown,	771 05	133 67	904 72	-	-	-	904 72	56 88	-	56 88	60 23	2.35	117 50
Bellingham,	416 03	412 32	828 35	60	50 00	50 60	878 95	129 66	15 72	145 38	52 36	3.18	159 00
Berkley,	193 32	16 80	210 12	-	-	-	210 12	21 82	-	21 82	68 22	.77	16 80
Beverly,	13,781 60	1,073 55	14,855 15	4,116 01	9,987 41	14,103 42	28,968 57	189 01	1,758 35	1,947 35	328 67	5.68	284 00
Billerica,	175 18	185 69	360 87	-	316 38	316 38	677 25	320 16	545 48	865 63	440 06	.58	29 00
Blackstone,	1,314 10	505 69	1,819 79	40	24 81	25 21	1,845 00	193 75	9 50	203 25	107 87	2.61	130 50
Bourne,	3,208 57	679 63	3,888 20	1,630 85	3,640 16	5,271 01	9,159 21	120 93	647 71	768 64	120 71	5.62	281 00
Boston,	-	870 89	870 89	-	-	-	870 89	622 06	-	622 06	439 84	1.40	70 00
Boxboro,	1,087 41	387 60	1,475 01	-	-	-	1,475 01	117 10	-	117 10	62 24	3.31	165 50
Braintree,	560 56	188 48	749 04	-	-	-	749 04	177 81	-	177 81	81 69	1.06	53 00
Brewster,	5,859 63	1,076 88	6,936 51	-	-	-	6,936 51	137 71	-	137 71	83 00	7.82	391 00

Bridgewater, . . .	739 94	2,426 85	3,166 79	-	50 14	50 14	3,216 93	699 38	14 45	713 83	221 14	3 47	173 50
Brimfield, . . .	1,977 52	263 20	2,240 72	-	5,822 49	5,822 49	8,083 21	66 29	1,466 62	1,532 91	55 12	3 97	198 50
Brookton, . . .	2,674 82	690 36	3,365 18	3,990 98	4 25	3,995 23	7,360 41	216 41	1 33	217 74	103 93	3 19	159 50
Brookfield, . . .	3,264 17	3,659 80	6,773 97	527 51	69 73	597 24	7,371 21	902 26	17 93	920 19	217 67	3 89	194 50
Buckland, . . .	5,484 61	835 49	6,320 10	-	4,361 48	4,361 48	10,681 58	195 21	1,019 04	1,214 26	136 62	4 28	214 00
Burlington, . . .	1,979 66	543 56	2,523 22	-	2,137 75	2,137 75	4,660 97	143 04	562 57	705 60	118 51	3 80	190 00
Canton, . . .	1,443 06	1,900 74	3,343 80	2,063 02	19 80	2,062 82	5,426 62	588 46	6 13	594 59	296 70	3 23	161 50
Charlemont, . . .	4,511 12	103 64	4,614 76	-	-	-	4,614 76	135 99	-	135 89	498 35	.77	38 50
Charlton, . . .	1,804 06	463 21	2,267 27	43 81	-	43 81	2,311 08	132 35	-	132 35	102 83	3 50	175 00
Chatham, . . .	2,074 45	496 69	2,571 14	-	-	-	2,571 14	69 27	-	69 27	70 79	7 17	368 50
Chelmsford, . . .	2,369 25	622 40	2,991 65	20	-	20	2,991 85	133 28	-	133 28	109 71	4 67	233 50
Chelsea, . . .	592 76	241 76	834 52	75	8 25	9 00	843 52	251 83	8 59	260 42	122 18	.96	48 00
Cheshire, . . .	2,073 10	2,005 62	4,078 72	-	-	-	4,078 72	478 67	-	478 67	183 31	4 19	209 50
Chester, . . .	2,798 80	1,028 15	3,826 95	-	-	-	3,826 95	211 12	-	211 12	148 85	4 87	243 50
Chicopee, . . .	10,709 25	1,760 76	12,470 01	3 10	936 67	939 77	13,409 78	452 64	240 79	693 43	521 14	3 89	194 50
Chilmark, . . .	514 07	176 20	690 27	-	-	-	690 27	35 31	-	35 31	47 59	4 99	176 20
Clarkburg, . . .	406 48	964 68	1,391 16	-	-	-	1,391 16	903 38	-	903 38	390 78	1 09	54 50
Cohasset, . . .	1,060 11	2,075 10	3,125 21	-	360 65	360 65	3,485 86	910 18	158 62	1,068 80	135 91	2 28	114 00
Colrain, . . .	1,761 91	232 79	1,994 70	-	-	-	1,994 70	109 29	-	109 29	99 49	2 13	106 50
Concord, . . .	7,890 34	552 72	8,443 06	216 81	2,322 82	2,339 63	10,982 69	153 96	647 02	800 98	279 20	3 59	179 50
Dakon, . . .	5,240 07	772 65	6,012 72	-	-	-	6,012 72	301 82	-	301 82	211 42	2 56	128 00
Dartmouth, . . .	4,530 44	391 27	4,921 71	19 13	1,922 05	1,941 18	6,862 89	86 18	423 36	509 54	157 96	4 54	227 00
Dedham, . . .	-	3 84	3 84	-	-	-	3 84	128 00	-	128 00	128 00	.03	1 50

Table showing the Amounts expended for Repairs, Maintenance, etc. — Continued.

TOWN OR CITY.	AMOUNTS EXPENDED.						EXPENDED PER MILE IN 1910.			Length under Maintenance (Miles).	Cost per Mile per Year.	Amount to be assessed on Cities and Towns.	
	FROM REVENUE APPROPRIATION.			FROM MOTOR VEHICLE FEES FUND.			Total expended.	From Revenue Appropriation.	From Motor Vehicle Fees Fund.				Total.
	To 1910.	During 1910.	Total.	To 1910.	During 1910.	Total.							
Deerfield, . . .	\$6,745 08	\$1,653 06	\$8,398 14	-	\$1,817 64	\$1,817 64	\$10,215 78	\$272 33	\$299 44	\$571 77	\$192 84	\$303 50	
Dennis, . . .	5,501 33	578 95	6,080 28	-	-	-	6,080 28	77 19	-	77 19	74 30	375 00	
Dighton, . . .	576 26	387 68	963 94	\$24 20	1,756 83	1,781 03	2,744 97	108 59	492 12	600 71	64 82	178 50	
Douglas, . . .	1,073 71	132 65	1,206 36	53 75	2,091 30	2,145 05	3,351 41	62 28	981 82	1,044 10	91 39	106 50	
Dover, . . .	476 20	302 39	778 59	80	-	80	779 39	138 24	-	138 24	107 84	109 00	
Draut, . . .	280 55	337 29	617 84	-	-	-	617 84	184 31	-	184 31	93 61	91 50	
Dudley, . . .	1,947 92	381 88	2,329 70	-	-	-	2,329 70	166 75	-	166 75	205 10	114 50	
Duxbury, . . .	2,780 18	2,489 02	5,269 20	-	9 50	9 50	5,278 70	482 36	1 84	484 20	106 94	258 00	
East Longmeadow, . . .	208 89	105 00	313 89	-	-	-	313 89	58 33	-	58 33	52 40	90 00	
Eastham, . . .	2,149 92	922 97	3,072 89	2 16	-	2 16	3,075 05	143 80	-	143 80	195 98	323 00	
Easthampton, . . .	2,258 47	516 07	2,774 54	-	-	-	2,774 54	213 25	-	213 25	93 96	121 00	
Easton, . . .	599 26	45 22	644 48	2,146 70	3,659 80	5,806 50	6,450 98	56 52	4,574 75	4,631 27	89 02	40 00	
Edgartown, . . .	3,254 45	371 21	3,625 66	248 44	1 30	249 74	3,875 40	153 39	53	153 92	159 30	121 00	
Erving, . . .	2,436 26	337 16	2,773 42	4 84	57 44	62 28	2,835 70	100 34	17 09	117 44	113 48	168 00	
Essex, . . .	2,968 08	322 44	3,290 52	85 09	177 64	262 73	3,553 25	921 26	507 54	1,428 80	1,300 60	17 50	
Fairhaven, . . .	1,183 79	101 63	1,285 42	-	-	-	1,285 42	70 08	-	70 08	58 43	72 50	
Falmouth, . . .	3,854 47	2,560 17	6,414 64	-	14 32	14 32	6,428 96	164 53	92	165 45	85 29	778 00	
Fitchburg, . . .	5,883 91	465 01	6,348 92	2,278 02	-	2,278 02	8,628 94	115 67	-	115 67	152 80	206 00	

	768 22	189 32	947 54	-	-	947 54	53 90	-	53 90	45 53	3.51	176 50
Forborough, .	287 51	380 43	677 94	40	-	678 34	121 62	-	121 62	59 62	3.21	160 50
Framingham, .	208 32	221 70	430 02	40	-	430 42	160 65	-	160 65	80 98	1.38	69 00
Franklin, .	1,257 98	562 26	1,820 24	-	-	1,820 24	145 28	-	145 28	74 02	3.87	193 50
Freetown, .	4,156 02	498 17	4,644 19	430 72	179 45	5,254 36	145 29	53 40	198 69	121 01	3.36	168 00
Gardner, .	17,071 49	523 83	17,595 32	834 03	5,077 34	23,506 69	131 62	1,275 71	1,407 32	458 33	3.98	199 00
Gloucester, .	6,132 43	59 43	6,241 86	-	-	6,241 86	24 16	-	24 16	212 02	2.46	59 43
Goshen, .	3,697 03	434 47	4,131 50	3,157 45	-	7,288 95	211 94	-	211 94	203 42	2.05	102 50
Grafton, .	5,007 92	618 12	5,686 04	112 37	-	5,798 41	273 50	-	273 50	312 59	2.26	113 00
Granby, .	11,201 36	721 19	11,922 55	1,528 70	-	13,451 25	211 49	-	211 49	274 05	3.41	170 50
Great Barrington, .	1,203 36	523 29	1,726 65	-	-	1,726 65	97 63	-	97 63	79 68	5.36	268 00
Greenfield, .	537 89	98 75	636 64	28 00	-	661 64	70 03	-	70 03	57 46	1.41	70 50
Groton, .	1,174 82	511 51	1,686 33	65	1,743 64	3,430 62	297 39	1,013 74	1,311 13	129 22	1.72	86 00
Groveland, .	6,009 19	4,204 49	10,213 68	44 62	4,646 92	14,905 22	896 48	990 81	1,887 29	206 31	4.69	234 50
Hadley, .	2,557 76	473 46	3,031 22	199 45	793 44	4,024 11	177 99	298 28	476 27	191 37	2.66	133 00
Hamilton, .	8,505 16	1,293 66	9,858 82	-	-	9,858 82	400 51	-	400 51	220 42	3.23	161 50
Hancock, .	260 20	589 64	849 84	-	-	849 84	318 72	-	318 72	158 25	1.85	92 50
Hanover, .	990 74	109 48	1,100 22	-	-	1,100 22	133 51	-	133 51	124 18	.82	41 00
Hardwick, .	443 55	208 26	651 81	-	-	651 81	131 81	-	131 81	58 62	1.58	79 00
Harvard, .	3,204 99	1,191 04	4,396 03	-	-	4,396 03	183 80	-	183 80	89 57	6.48	324 00
Harwich, .	480 58	156 37	636 95	-	-	636 95	77 80	-	77 80	104 76	2.01	100 50
Hatfield, .	7,462 98	496 36	7,959 24	1 00	2,173 24	10,133 58	93 83	410 82	504 65	244 00	5.29	264 50
Haverhill, .	2,930 51	2,924 86	5,855 37	6,446 34	-	12,301 71	1,099 57	-	1,099 57	155 32	2.66	133 00
Hingham, .												

Table showing the Amounts expended for Repairs, Maintenance, etc. — Continued.

TOWN OR CITY.	AMOUNTS EXPENDED.										EXPENDED PER MILE IN 1910.			Length under Maintenance per Year. (Miles).	Amount to be assessed on Cities and Towns.
	FROM REVENUE APPROPRIATION.			FROM MOTOR VEHICLE FEES FUND.				Total expended.	From Revenue Appropriation.	From Motor Vehicle Fees Fund.	Total.				
	During 1910.		Total.	During 1910.		Total.									
	To 1910.			To 1910.											
Hinsdale, . . .	\$490 58	\$159 86	\$650 44	-	-	-	\$650 44	\$156 73	-	-	\$156 73	\$32 86	1.02	\$51 00	
Holbrook, . . .	1,031 77	125 81	1,157 58	-	-	-	1,157 58	71 89	-	-	71 89	53 41	1.75	87 50	
Holden, . . .	9,365 12	654 22	10,019 34	\$666 11	\$1,017 34	\$1,683 45	11,702 79	138 21	\$215 08	353 30	186 55	4.73	236 50		
Holliston, . . .	129 47	236 15	365 62	45	-	45	366 07	161 74	-	-	161 74	77 30	1.46	73 00	
Holyoke, . . .	-	19 82	19 82	-	1,984 45	1,984 45	2,004 27	4 76	477 03	481 79	9 91	4.16	19 72		
Hudson, . . .	241 44	99 90	341 34	10	-	10	341 44	87 63	-	-	87 63	80 32	1.14	57 00	
Huntington, . . .	6,610 10	443 11	7,053 21	1,232 91	-	1,232 91	7,286 12	196 07	-	-	196 07	362 07	2.26	113 00	
Ipswich, . . .	359 32	272 88	632 20	571 73	541 10	1,112 83	1,745 03	77 97	154 60	232 56	128 76	3.50	175 00		
Kingston, . . .	436 94	208 60	645 54	-	-	-	645 54	204 51	-	-	204 51	148 74	1.02	51 00	
Lakeville, . . .	1,142 85	418 76	1,561 61	-	-	-	1,561 61	117 30	-	-	117 30	53 42	3.57	178 50	
Lancaster, . . .	547 37	279 51	826 88	-	-	-	826 88	223 61	-	-	223 61	80 99	1.25	62 50	
Lawrence, . . .	2,887 04	140 39	3,027 43	112 64	32 19	144 83	3,172 26	519 96	119 22	639 18	840 95	.27	13 50		
Lee, . . .	14,244 00	1,540 85	15,784 85	3,182 13	501 07	3,683 20	19,468 05	254 69	82 82	337 50	339 67	6.05	302 50		
Leicester, . . .	18,215 66	5,056 76	23,272 42	8,476 21	5,431 61	13,907 82	37,180 24	1,038 35	1,115 32	2,153 66	374 64	4.87	243 50		
Lenox, . . .	17,373 43	4,146 43	21,519 86	5,593 55	5 00	5,598 55	27,118 41	541 31	65	541 96	495 17	7.66	383 00		
Leominster, . . .	889 33	410 87	1,300 20	-	-	-	1,300 20	188 47	-	-	188 47	72 28	2.18	109 00	
Lexington, . . .	11,421 48	499 25	11,920 73	5,558 78	2,416 63	7,975 41	19,896 14	116 38	563 31	679 69	221 20	4.20	214 50		
Lincoln, . . .	6,386 30	366 07	6,752 37	1,852 43	1,394 30	3,246 73	9,999 10	177 70	676 84	854 54	236 01	2.06	103 00		

Littleton, . . .	1,578 33	671 40	2,249 73	-	425 63	425 63	2,675 36	226 06	143 30	366 36	125 67	2 97	148 50
Lowell, . . .	14,301 94	280 46	14,862 44	196 14	19 52	215 66	15,068 10	239 35	8 48	247 83	506 06	2 30	115 00
Lunenburg, . . .	2,367 50	624 27	2,891 77	3,716 77	-	3,716 77	6,608 54	127 26	-	127 25	106 21	4 12	206 00
Lynn, . . .	4,712 35	3,074 95	7,787 30	972 79	3,915 46	4,868 25	12,675 55	3,416 50	4,350 51	7,767 12	171 40	.90	45 00
Mansfield, . . .	421 66	79 95	501 61	-	-	-	501 61	66 07	-	66 07	64 23	1 21	60 50
Marion, . . .	8,817 01	1,444 66	10,261 67	1,045 88	205 78	1,251 66	11,513 33	259 37	36 94	296 30	175 89	5 57	278 50
Marlborough, . . .	9,188 90	1,707 84	10,896 74	223 33	4,085 90	4,309 23	15,205 97	269 80	645 48	915 28	226 26	6 33	316 50
Marshfield, . . .	2,289 87	1,934 05	4,223 92	-	60 17	60 17	4,284 09	233 53	7 26	240 84	98 60	8 28	414 00
Mattapoisett, . . .	3,027 84	1,046 12	4,073 96	268 49	9 00	275 49	4,349 45	325 90	2 80	328 70	114 59	3 21	160 50
Medford, . . .	526 80	75 83	602 63	-	664 43	664 43	1,267 11	88 17	772 65	860 82	289 73	.86	43 00
Melrose, . . .	220 42	85 83	306 25	-	-	-	306 25	99 80	-	99 80	187 88	.40	20 00
Merrimac, . . .	1,607 25	301 48	1,908 73	90	10 06	10 96	1,919 69	135 19	4 51	139 70	87 92	2 23	111 50
Methuen, . . .	4,140 49	221 78	4,362 27	50	2,833 50	2,834 00	7,246 27	60 10	781 44	841 54	142 09	3 69	184 50
Middleborough, . . .	2,574 77	3,177 42	5,752 19	-	2,209 12	2,209 12	7,961 31	255 21	177 44	432 65	61 89	12 45	622 50
Milford, . . .	291 71	424 39	716 10	-	-	-	716 10	179 07	-	179 07	74 59	2 37	118 50
Millbury, . . .	1,297 04	504 85	1,801 89	-	1,246 33	1,246 33	3,048 22	169 41	418 21	537 62	89 20	2 96	149 00
Milton, . . .	3,195 89	333 12	3,529 01	-	-	-	3,529 01	332 90	-	332 90	410 35	.87	43 50
Monson, . . .	1,311 96	171 71	1,483 67	-	-	-	1,483 67	106 65	-	106 65	87 74	1 61	80 50
Montague, . . .	1,646 59	371 68	2,018 27	-	9 28	9 28	2,027 55	75 70	1 88	77 58	67 34	4 91	245 50
Nantucket, . . .	14,960 90	479 56	15,440 46	112 40	679 43	791 83	16,232 29	74 01	104 85	178 85	193 85	6 48	324 00
Natick, . . .	1,115 23	1,266 90	2,382 13	84	4,271 22	4,272 06	6,654 19	395 90	1,334 76	1,730 66	102 90	3 20	160 00
Needham, . . .	224 28	511 44	735 72	-	456 11	456 11	1,191 83	251 94	224 68	476 62	58 52	2 03	101 50
New Braintree, . . .	231 44	6 36	237 80	-	-	-	237 80	15 90	-	15 90	66 67	.40	6 36

Table showing the Amounts expended for Repairs, Maintenance, etc. — Continued.

TOWN OR CITY.	AMOUNTS EXPENDED.						Total expended.	EXPENDED PER MILE IN 1910.			Cost per Mile Maintained per Year.	Length under Maintenance (Miles).	Amount to be assessed on Cities and Towns.
	FROM REVENUE APPROPRIATION.			FROM MOTOR VEHICLE FEES FUND.				From Revenue Appropriation.	From Motor Vehicle Fees Fund.	Total.			
	To 1910.	During 1910.	Total.	To 1910.	During 1910.	Total.							
Newbury, . . .	\$5,193 80	\$2,491 38	\$7,685 18	\$1,177 80	\$3,277 07	\$4,454 87	\$31,896 77	\$588 93	\$774 72	\$1,363 65	\$256 37	4.23	\$211 50
Newburyport, . .	7,173 32	263 30	7,436 62	232 26	1,844 80	2,077 06	9,513 68	180 46	1,054 17	1,204 63	347 18	1.75	87 50
Newton, . . .	112 74	36 25	148 99	—	1,510 54	1,510 54	1,659 53	35 19	1,466 54	1,501 73	15 92	1.03	36 25
Norfolk, . . .	1,534 18	614 72	2,148 90	2,594 61	553 75	3,148 36	5,297 26	423 94	381 90	805 84	75 06	1.45	72 50
North Adams, . .	15,378 97	1,390 54	16,769 51	1,270 90	566 83	1,837 73	18,607 24	346 76	141 36	488 12	383 56	4.01	200 50
Northampton, . .	4,693 34	666 79	5,360 13	48 63	1,068 33	1,116 96	6,477 09	328 46	526 27	854 73	179 15	2.03	101 50
North Andover, . .	1,345 30	619 57	1,964 87	40	—	40	1,965 27	183 30	—	183 30	114 64	3.38	169 00
North Attleborough, .	3,924 83	556 69	4,481 52	10,003 18	3,809 40	13,812 58	18,294 10	184 61	1,088 16	1,212 87	90 26	3.60	180 00
Northborough, . .	3,193 53	502 03	3,695 56	878 05	1,148 40	2,026 45	5,722 01	126 45	289 26	415 71	98 89	3.97	198 50
North Brookfield, . .	382 20	128 70	510 90	—	—	—	510 90	57 20	—	57 20	78 72	2.25	112 50
Northfield, . . .	607 65	531 57	1,139 22	—	—	—	1,139 22	458 25	—	458 25	121 58	1.16	58 00
North Reading, . .	2,278 92	185 12	2,464 04	7 89	4,109 96	4,117 85	6,581 89	80 14	1,779 20	1,859 34	166 09	2.31	115 50
Norton, . . .	1,384 75	69 80	1,454 55	—	—	—	1,454 55	34 73	—	34 73	187 68	2.01	69 80
Norwood, . . .	6,844 75	2,036 67	8,881 42	1,343 43	1,034 83	2,378 26	11,259 68	993 50	504 79	1,498 29	331 02	2.05	102 50
Oak Bluffs, . . .	7,835 36	249 48	7,634 84	248 46	1 30	249 76	7,884 60	105 26	55	105 81	220 46	2.37	118 50
Orange, . . .	11,603 01	693 85	12,296 86	27 67	500 00	527 67	2,824 53	144 54	104 16	248 70	248 37	4.80	240 00
Orleans, . . .	1,481 04	517 63	1,998 67	—	2 95	2 95	2,001 62	110 13	63	110 76	66 21	4.70	235 00
Oxford, . . .	185 82	175 03	360 85	—	—	—	360 85	79 92	—	79 92	73 49	2.19	109 50

Palmer,	4,722 57	2,594 73	7,317 30	534 38	5,343 64	5,878 02	13,195 32	261 57	538 67	800 24	141 93	9 92	496 00
Paxton,	11,313 69	4,941 28	16,354 97	7,559 68	1,977 30	9,536 88	25,791 85	1,372 58	549 25	1,921 82	331 33	3 60	180 00
Pembroke,	367 33	108 62	475 95	-	-	-	475 95	310 35	-	310 35	286 54	.35	17 50
Phillipston,	3,628 94	228 48	3,857 42	-	14 91	14 91	3,872 33	82 19	5 36	87 55	219 69	2 78	139 00
Pittsfield,	15,394 69	6,985 43	22,080 12	254 74	-	254 74	22,334 86	955 06	-	955 06	357 22	7 00	350 00
Plainville,	1,621 19	201 79	1,822 98	5,898 23	245 12	6,063 35	7,876 33	111 49	135 42	246 91	167 86	1 81	90 50
Plymouth,	5,344 08	1,633 70	6,977 78	-	-	-	6,977 78	223 48	-	223 48	112 22	7 31	365 50
Princeton,	938 10	168 27	1,108 37	-	182 60	182 60	1,288 97	75 45	81 88	157 33	46 39	2 23	111 50
Provincetown,	763 23	92 96	856 19	-	-	-	856 19	74 51	-	74 51	102 54	1 10	55 00
Quincy,	4,151 84	382 89	4,534 73	2,316 12	847 81	3,163 93	7,698 66	143 40	317 53	460 93	269 76	2 67	133 59
Randolph,	608 24	452 38	1,060 62	2,500 38	863 49	3,363 87	4,424 49	238 10	454 46	692 56	100 25	1 90	95 00
Raynham,	452 25	97 74	549 99	-	-	-	549 99	66 04	-	66 04	47 21	1 48	74 00
Reading,	6,873 86	-	-	1,211 54	1,790 32	3,001 86	10,207 60	88 74	478 69	567 43	249 16	3 74	187 00
Rehoboth,	2,258 18	-	-	-	1,503 99	1,503 99	4,131 15	61 19	249 41	310 60	63 24	6 03	301 50
Revere,	4,953 97	-	-	3,938 47	5,848 41	9,786 88	15,096 75	284 72	4,678 72	4,963 44	376 32	1 25	62 50
Richmond,	3,121 64	66 38	3,188 02	-	-	-	3,188 02	16 51	-	16 51	102 21	4 02	66 38
Rochester,	2,200 69	336 72	2,537 41	-	-	-	2,537 41	54 57	-	54 57	69 04	6 17	308 50
Rockland,	844 42	197 87	1,041 99	-	-	-	1,041 99	84 07	-	84 07	77 07	2 35	117 50
Rockport,	256 42	153 72	410 14	-	1,023 98	1,023 98	1,434 12	163 53	1,089 34	1,282 87	89 16	.94	47 00
Rowley,	538 44	1,179 63	1,718 07	45 45	19 50	64 95	1,783 02	406 77	6 72	413 49	280 27	2 90	145 00
Russell,	16,299 47	2,447 28	18,746 75	1,409 48	9,639 93	11,049 41	29,796 16	367 45	1,447 44	1,814 89	216 70	6 66	333 00
Rutland,	553 54	179 54	733 08	-	-	-	733 08	154 78	-	154 78	126 39	1 16	58 00
Salem,	22 06	580 81	602 87	26 55	1,845 48	1,872 03	2,474 90	414 86	1,318 20	1,733 06	239 23	1 40	70 00

Table showing the Amounts expended for Repairs, Maintenance, etc. — Continued.

TOWN OR CITY.	AMOUNTS EXPENDED.						Total expended.	EXPENDED PER MILE IN 1910.			Cost per Mile maintained per Year.	Length under Maintenance (Miles).	Amount to be assessed on Cities and Towns.
	FROM REVENUE APPROPRIATION.			FROM MOTOR VEHICLE FEES FUND.				From Revenue Appropriation.	From Motor Vehicle Fees Fund.	Total.			
	To 1910.	During 1910.	Total.	To 1910.	During 1910.	Total.							
Salisbury, . . .	\$1,125 27	\$432 64	\$1,607 91	\$906 76	\$258 35	\$1,165 11	\$125 69	\$64 67	\$190 36	\$207 34	3.84	\$192 00	
Sandwich, . . .	3,713 79	1,469 51	5,183 30	-	-	-	521 10	-	521 10	163 41	2.82	141 00	
Saugus, . . .	5,196 03	420 15	5,616 18	3,743 48	17,091 85	20,835 33	234 72	9,548 52	9,783 24	319 83	1.79	89 50	
Scituate, . . .	2,467 53	3,805 88	6,273 41	-	100 00	100 00	708 73	18 62	727 35	191 62	5.37	268 50	
Seekonk, . . .	2,663 39	182 65	2,846 04	346 42	-	346 42	66 18	-	66 18	135 66	2.76	138 00	
Sharon, . . .	65 79	42 78	108 57	-	-	-	66 84	-	66 84	81 63	.64	32 00	
Shelburne, . . .	5,415 21	780 11	6,196 32	-	413 50	413 50	361 16	191 43	552 59	201 08	2.16	108 00	
Shrewsbury, . . .	14,867 65	781 73	15,649 38	14,252 01	436 24	14,688 25	160 85	89 76	260 61	287 61	4.86	243 00	
Somerset, . . .	4,764 06	1,807 84	6,571 90	8,024 85	2,564 75	10,589 60	283 91	360 21	614 12	97 41	7.12	356 00	
Somerville, . . .	400 19	651 98	1,052 17	-	998 22	998 22	562 05	860 53	1,422 58	463 51	1.16	58 00	
Southampton, . . .	242 29	165 30	407 59	-	-	-	232 82	-	232 82	120 58	.71	35 50	
Southborough, . . .	711 32	629 79	1,341 11	42 75	-	42 75	170 67	-	170 67	118 26	3.69	184 50	
Southbridge, . . .	985 18	267 48	1,252 66	4 00	-	4 00	196 68	-	196 68	137 96	1.36	68 00	
South Hadley, . . .	12,281 31	1,211 25	13,492 56	199 74	-	199 74	210 65	-	210 65	279 29	5.75	287 50	
Spencer, . . .	4,203 25	1,621 88	5,825 13	774 23	512 64	1,286 87	535 27	169 18	704 46	309 36	3.03	151 50	
Sterling, . . .	1,964 21	522 08	2,486 29	-	-	-	141 49	-	141 49	109 96	3.69	184 50	
Stockbridge, . . .	2,115 87	1,263 10	3,368 97	610 25	-	610 25	379 73	-	379 73	390 31	3.30	165 00	
Stoneham, . . .	5,701 63	462 17	6,163 80	1,146 80	580 34	1,727 14	292 51	367 30	659 81	366 89	1.58	79 00	

Stoughton,	3,910 29	737 91	86 33	824 23	4,734 53	574 84	26 15	600 99	198 70	3 30	165 00
Sturbridge,	1,009 20	-	15 23	15 23	1,114 43	201 01	6 45	207 46	87 03	2 36	118 00
Sudbury,	14,737 06	3,283 74	2,896 75	6,180 49	20,917 55	189 00	566 88	755 89	310 64	5 11	265 50
Sunderland,	745 31	-	-	-	745 31	67 92	-	67 92	82 26	1 56	78 00
Sutton,	2,829 12	-	941 69	941 69	3,770 81	131 32	413 03	544 35	144 05	2 28	114 00
Swampscott,	4,585 57	762 58	723 90	1,456 48	6,072 05	479 97	485 83	965 80	273 27	1 49	74 50
Swansea,	1,165 04	-	35 27	35 27	1,200 31	102 28	6 68	108 96	64 83	5 28	264 00
Taunton,	4,918 44	53 23	-	53 23	4,970 67	163 01	-	163 01	117 36	4 67	233 50
Templeton,	2,271 08	-	-	-	2,271 08	114 08	-	114 08	87 78	5 69	284 50
Tewksbury,	2,049 39	3,724 64	385 26	4,119 90	6,169 29	90 21	60 16	160 37	46 91	6 57	238 50
Tisbury,	2,073 24	-	-	-	2,073 24	76 82	-	76 82	69 67	1 93	96 50
Townsend,	3,243 61	-	-	-	3,243 61	76 29	-	76 29	66 59	5 42	271 00
Truro,	4,129 48	-	-	-	4,129 48	103 18	-	103 18	133 94	3 16	188 00
Tyngsborough,	6,067 10	-	-	-	6,067 10	336 86	-	336 86	145 28	4 82	241 00
Uxbridge,	1,466 68	-	-	-	1,466 68	110 97	-	110 97	63 08	2 94	147 00
Wales,	507 03	-	-	-	507 03	139 14	-	139 14	58 55	1 04	53 00
Walpole,	11,305 98	6,898 96	1,686 22	8,585 18	19,891 16	726 16	371 41	1,097 57	195 67	4 54	227 00
Ware,	2,658 53	-	-	-	2,658 53	119 80	-	119 80	107 02	4 18	209 00
Wareham,	8,829 06	3,152 39	9 34	3,161 73	11,990 79	284 95	1 11	386 06	203 25	8 42	421 00
Warren,	9,638 64	243 69	3,949 73	4,193 42	13,832 06	1,331 07	963 35	2,294 42	241 69	4 10	205 00
Watertown,	3,885 19	3,101 38	2,451 22	5,552 60	9,437 79	406 52	2,883 79	3,290 31	322 68	.85	42 50
Wayland,	10,896 45	476 66	3,246 37	3,723 03	14,619 43	196 61	1,258 28	1,454 89	413 84	2 58	129 00
Webster,	272 34	50 43	-	50 43	322 77	218 23	-	218 23	171 26	.65	32 50

Table showing the Amounts expended for Repairs, Maintenance, etc. — Concluded.

TOWN OR CITY.	AMOUNTS EXPENDED.						EXPENDED PER MILE IN 1910.			Cost per Mile Mainte- nance per Year.	Length under Main- tenance (Miles).	Amount to be assessed on Cities and Towns.	
	FROM REVENUE APPROPRIA- TION.			FROM MOTOR VEHICLE FEES FUND.			Total ex- pended.	From Revenue Appropriation.	From Motor Vehicle Fees Fund.				Total.
	To 1910.	During 1910.	Total.	To 1910.	During 1910.	Total.							
Walledley, . . .	\$628 59	\$2,019 57	\$2,648 16	\$85	\$1,518 91	\$1,519 76	\$4,167 92	\$1,711 50	\$1,287 21	\$2,998 71	\$242 95	1.18	\$59 00
Wellfleet, . . .	2,968 23	527 76	3,495 99	5 20	-	5 20	3,491 19	113 49	-	113 49	124 10	4.65	232 50
Wenham, . . .	4,302 06	922 21	5,724 27	1,485 44	1,433 92	2,919 36	8,643 63	523 98	814 73	1,338 71	335 34	1.76	88 00
Westborough, . .	848 72	392 99	1,241 71	-	-	-	1,241 71	131 43	-	131 43	90 44	2.99	149 50
West Boylston, .	2,074 00	332 25	2,406 25	-	-	-	2,406 25	214 35	-	214 35	128 33	1.55	77 50
West Bridgewater, .	9,554 46	2,993 82	12,548 28	758 96	4 25	763 21	13,311 49	947 41	1 34	948 75	475 67	3.16	158 00
West Brookfield, .	1,877 13	1,276 96	3,154 09	47 88	146 58	194 46	3,348 55	476 48	54 90	531 17	146 02	2.68	134 00
Westfield, . . .	16,638 52	849 52	17,488 04	-	2,748 74	2,748 74	20,236 78	146 22	473 10	619 32	256 61	5.81	290 50
Westford, . . .	2,261 55	509 71	2,771 26	-	-	-	2,771 26	156 83	-	156 83	109 09	3.25	162 50
Westminster, . .	7,964 66	625 55	8,590 21	9,604 50	738 59	10,343 09	18,933 30	119 15	140 98	259 83	161 05	5.25	262 50
West Newbury, .	11,352 63	883 70	12,236 33	249 29	3,134 60	3,383 89	15,620 22	173 61	615 83	789 44	314 88	5.09	254 50
Weston, . . .	7,087 31	812 98	7,900 29	1,829 04	3,278 68	5,107 72	13,008 01	288 08	1,040 85	1,298 93	228 00	3.15	157 50
Westport, . . .	10,247 80	657 76	10,905 56	-	3,199 22	3,199 22	14,104 78	154 76	752 75	907 52	186 74	4.25	212 50
West Springfield, .	5,457 77	622 63	6,080 40	1,099 86	-	1,099 86	7,180 26	325 98	-	325 98	306 84	1.01	95 50
West Tisbury, . .	1,779 16	-	1,779 16	-	-	-	1,779 16	-	-	-	32 84	5.35	-
Westwood, . . .	1,733 59	123 24	1,856 93	338 52	736 79	1,075 31	2,932 24	117 46	701 70	819 17	171 15	1.05	52 50
Weymouth, . . .	7,525 01	4,161 36	11,686 37	-	96	96	11,687 33	638 25	14	638 39	255 44	6.52	326 00
Whately, . . .	6,875 69	242 05	7,117 74	648 29	599 80	1,248 09	8,365 83	61 28	151 84	213 12	263 21	3.95	197 50

Whitman, . . .	1,771 97	1,388 61	3,160 58	-	3,126 33	3,126 33	6,286 91	816 83	1,839 01	2,655 84	127 14	1.70	85 00
Wilbraham, . .	4,262 23	1,244 82	5,507 05	186 87	4,774 77	4,961 44	10,468 49	258 26	990 61	1,248 87	116 25	4.82	241 00
Williamsburg, .	3,743 83	172 11	3,915 94	-	-	-	3,915 94	64 95	-	64 95	142 50	2.65	132 50
Williamstown, .	7,320 05	275 34	7,595 39	1,430 97	-	1,430 97	9,026 36	132 38	-	132 38	294 49	2.08	104 00
Wilmington, . .	51 05	93 60	144 65	747 17	73 20	820 37	965 02	79 32	62 03	141 35	49 71	1.18	59 00
Winchester, . .	3,730 48	656 40	4,386 88	-	2,176 90	2,176 90	6,563 78	386 12	1,280 52	1,666 64	212 34	1.96	98 00
Winchendon, . .	84 13	103 36	187 49	-	197 60	197 60	385 09	52 73	100 81	153 55	46 07	1.70	85 00
Windsor, . . .	716 02	-	716 02	-	-	-	716 02	-	-	-	67 11	1.86	-
Woburn, . . .	2,379 31	433 42	2,812 73	-	1,917 45	1,917 45	4,730 18	213 51	944 55	1,158 06	158 28	2.03	101 50
Worcester, . . .	13,966 85	2,336 17	16,323 02	2,802 42	1,553 21	4,354 63	20,677 65	571 19	379 51	950 70	403 03	4.09	204 50
Wrentham, . . .	4,413 97	1,922 30	6,336 27	2,943 12	-	2,943 12	9,279 39	470 00	-	470 00	108 03	4.09	204 50
Yarmouth (north), .	3,989 77	448 07	4,437 84	-	-	-	4,437 84	120 77	-	120 77	84 02	3.71	185 50
Yarmouth (south), .	6,549 19	462 90	7,012 09	-	-	-	7,012 09	90 94	-	90 94	102 00	5.09	254 50

APPENDIX K.

STATEMENT SHOWING THE NUMBER OF PETITIONS RECEIVED
AND THE LENGTH PETITIONED FOR, THE LAY-OUTS MADE
AND THEIR LENGTH AND DISTRIBUTION IN THE VARIOUS
COUNTIES OF THE COMMONWEALTH.

COUNTIES.	PETITIONS RECEIVED.				PETITIONS SITUATED IN —			LAY-OUTS MADE IN —			Number of Lay-outs.
	County.	City.	Towns.	Totals.	City.	Towns.	Totals.	City.	Towns.	Totals.	
Barnstable,	4	—	44	48	—	15	15	—	14	14	101
Berkshire,	15	12	54	81	2	28	28	2	15	17	92
Bristol,	2	6	45	53	2	17	19	1	17	18	94
Dukes,	2	—	5	7	—	5	5	—	5	5	24
Essex,	3	21	59	83	7	25	32	6	18	24	116
Franklin,	1	—	56	57	—	17	17	—	13	13	86
Hampden,	4	5	32	41	3	17	20	1	12	13	81
Hampshire,	1	6	45	52	1	17	18	1	12	13	76
Middlesex,	14	22	95	131	9	42	51	6	32	38	160
Nantucket,	—	—	1	1	—	1	1	—	1	1	14
Norfolk,	2	5	51	58	1	25	26	1	21	22	86
Plymouth,	—	7	62	69	1	25	26	1	19	20	122
Suffolk,	—	2	6	8	2	2	4	2	1	3	7
Worcester,	—	9	149	158	2	56	58	2	43	45	240
Totals,	48	95	704	847	30	290	320	23	223	246	1,299

NUMBER OF PETITIONS RECEIVED, ETC. — *Concluded.*

COUNTIES.	LENGTHS PETITIONED FOR.		LENGTHS LAID OUT.					
			1894-1909.		1910.		TOTALS.	
	Feet.	Miles.	Feet.	Miles.	Feet.	Miles.	Feet.	Miles.
Barnstable,	709,827	134.44	484,721	88.01	27,589	5.23	492,310	93.24
Berkshire,	790,287	149.67	303,362	57.46	11,524	2.18	314,886	59.64
Bristol,	790,871	149.78	314,067	59.49	17,743	3.36	331,810	62.85
Dukes,	121,043	22.92	90,100	17.06	—	—	90,100	17.06
Essex,	1,143,590	216.60	316,199	59.89	36,081	6.83	352,280	66.72
Franklin,	630,099	119.34	212,217	40.19	30,780	5.83	242,997	46.02
Hampden,	689,104	130.51	255,618	48.41	20,489	3.88	276,107	52.29
Hampshire,	513,694	97.29	186,795	35.38	10,002	1.89	196,797	37.27
Middlesex,	1,639,127	310.44	553,396	104.81	43,062	8.16	596,458	112.97
Nantucket,	34,185	6.47	34,211	6.48	—	—	34,211	6.48
Norfolk,	705,111	133.55	278,311	52.71	8,538	1.61	286,849	54.32
Plymouth,	1,057,370	200.26	434,725	82.33	42,763	8.11	477,488	90.44
Suffolk,	65,615	12.43	19,016	3.60	—	—	19,016	3.60
Worcester,	1,906,790	361.13	681,002	128.98	30,200	5.72	711,202	134.70
Totals,	10,796,693	2,044.83	4,143,740	784.80	278,771	52.80	4,422,511	837.60

APPENDIX L.

TABLE SHOWING THE WORK DONE UNDER THE "SMALL TOWN" ACT SINCE ITS PASSAGE IN 1900.

[Section 17, Chapter 47, Revised Laws, and Chapter 279, Acts of 1908.]

TOWNS.	ALLOTMENTS.			LENGTHS BUILT (FEET).			Types of Roads.
	Previous to 1910.	In 1910.	Total to Nov. 30, 1910.	Previous to 1910.	In 1910.	Total to Nov. 30, 1910.	
<i>Barnstable County.</i>							
Eastham,	\$598 00	\$2,000 00 ¹	\$2,598 00	1,150	7,000	8,750	1,150 feet graded only; 7,000 feet surfaced with oil, sand and clay. Sand and oil. Macadam. Broken stone and clay.
Mashpee,	400 00	800 00 ²	1,200 00	-	1,944 ²	1,944	
Provincetown,	5,095 56	-	5,095 56 ¹	9,930	-	9,930	
Wellfleet,	1,653 00	-	1,653 00	2,250	-	2,250	
	\$7,744 56	\$2,800 00	\$10,544 56	13,330	9,544	22,874	
<i>Berkshire County.</i>							
Alford,	\$1,269 00	\$400 00	\$1,669 00	4,663	1,120	5,783	Gravel.
Becket,	500 00 ¹	950 00 ²	1,450 00	1,250	1,900	3,150	Gravel.
Egremont,	2,946 00	600 00	3,546 00	7,456	700	8,156	Gravel.
Florida,	3,286 00	600 00	3,886 00	5,300	961	6,261	Gravel.

¹ Town contributed an equal amount.² Built with 1908 and 1910 allotments.⁴ Town contributed \$600.

WORK DONE UNDER THE "SMALL TOWN" ACT — Continued.

TOWNS.	ALLOTMENTS.			LENGTHS BUILT (FEET).			Types of Roads.
	Previous to 1910.	In 1910.	Total to Nov. 30, 1910.	Previous to 1910.	In 1910.	Total to Nov. 30, 1910.	
<i>Berkshire County — Con.</i>							
Hancock,	—	\$400 00	\$400 00	—	750	750	Gravel.
Lanesborough,	\$2,952 00	—	2,952 00	5,514	—	5,514	Gravel road and steel concrete bridge.
Hinsdale,	—	1,000 00 ¹	1,000 00	—	1,125	1,125	Bituminous macadam.
Monterey,	2,518 00	—	2,518 00	12,020	—	12,020	Gravel and culverts.
Mount Washington,	1,792 00	—	1,792 00	2,780	—	2,780	Gravel road and bridge repairs.
New Ashford,	961 00	—	961 00 ²	2,600	—	2,600	Gravel road and culvert construction and repairs.
New Marlborough,	5,328 00	900 00	6,228 00	17,750	2,550	20,300	Gravel.
Otis,	2,968 00	600 00	3,568 00	10,000	1,350	11,350	Gravel road and culvert repairs.
Peru,	1,991 00	—	1,991 00	8,345	—	8,345	Gravel.
Sandisfield,	6,360 00	1,250 00	7,610 00	14,203	5,810 ³	20,013	Macadam.
Savoy,	4,115 00	550 00	4,665 00	9,200	850	10,050	Gravel.
Sheffield,	6,488 00	500 00 ¹	6,988 00	11,682	1,550	13,232	Grading and gravel.
Tyringham,	2,765 00	400 00 ⁴	3,165 00	4,663	—	4,663	Grading and macadam.
Washington,	3,498 00	500 00 ⁴	3,998 00	7,570	—	7,570	Grading and gravel.
West Stockbridge,	4,076 00	1,250 00 ⁵	5,328 00	9,550	2,500	12,050	Gravel.
Windsor,	500 00	500 00 ⁴	1,000 00	580	—	580	Macadam.
	\$54,313 00	\$10,400 00	\$64,713 00	135,126	21,166	156,292	

WORK DONE UNDER THE "SMALL TOWN" ACT — *Continued.*

TOWNS.	ALLOTMENTS.			LENGTHS BUILT (FEET).			Types of Roads.
	Previous to 1910.	In 1910.	Total to Nov. 30, 1910.	Previous to 1910.	In 1910.	Total to Nov. 30, 1910.	
<i>Essex County — Con.</i>							
Swampscott,	\$2,925 00	-	\$2,925 00 ¹	5,200	-	5,200	Macadam. Gravel.
Topsfield,	3,984 00	-	3,984 00	20,575	3,800 ²	24,375	
	\$29,344 00	\$3,900 00	\$33,244 00	94,960	7,250	102,210	
<i>Franklin County.</i>							
Barnardston,	\$2,265 00	-	\$2,265 00	12,800	-	12,800	Gravel.
Charlemont,	1,000 00	\$1,200 00 ⁴	2,200 00	1,754	-	1,754	Gravel.
Conway,	4,352 00	-	4,352 00	8,010	-	8,010	Gravel.
Gill,	2,412 00	-	2,412 00	8,350	-	8,350	Gravel road and bridge repairs.
Hawley,	1,947 00	550 00	2,497 00	6,100	1,500	7,600	
Heath,	2,727 00	400 00	3,127 00	6,133	1,350	7,483	Grading and gravel.
Leverett,	4,326 00	250 00 ¹	4,576 00	11,329	1,050	12,379	
Leyden,	2,793 00	-	2,793 00	10,700	-	10,700	Gravel.
Monroe,	2,698 00	600 00 ⁵	3,298 00	4,850	-	4,850	Gravel.
New Salem,	3,552 00	1,400 00 ⁵	4,952 00	8,737	-	8,737	Gravel.
Orange,	-	1,000 00 ¹	1,000 00	-	4,470	4,470	Gravel.
Rowe,	2,723 00	450 00	3,173 00	7,210	1,200	8,410	Gravel.
Shutesbury,	2,734 00	400 00 ⁴	3,134 00	8,750	-	8,750	Gravel.

Warwick,	.	.	.	.	.	4,320 00	-	4,320 00	6,450	-	6,450	Gravel.
Wendell,	.	.	.	.	.	5,238 00	550 00 ^a	5,788 00	10,200	1,600	11,800	Grading and gravel.
<i>Hampden County.</i>												
Blandford,	.	.	.	.	.	\$4,444 00	\$950 00 ^a	\$5,394 00	8,400	-	8,400	Grading and gravel.
East Longmeadow,	.	.	.	.	.	680 00	-	680 00	2,850	-	2,850	Gravel.
Granville,	.	.	.	.	.	4,223 00	800 00 ^a	5,023 00	7,197	-	7,197	Grading and gravel.
Hampden,	.	.	.	.	.	3,408 00	400 00 ^a	3,808 00	31,550	-	31,550	Gravel.
Holland,	.	.	.	.	.	164 00	-	164 00	425	-	425	Grading.
Longmeadow,	.	.	.	.	.	1,200 00	-	1,200 00 ¹	1,425	-	1,425	Macadam and concrete culvert.
Montgomery,	.	.	.	.	.	1,420 00	-	1,420 00	3,100	-	3,100	Gravel.
Russell,	.	.	.	.	.	1,000 00	-	1,000 00 ¹	-	-	-	-
Southwick,	.	.	.	.	.	3,028 00	1,100 00 ¹	4,128 00	11,800	4,206	16,006	Gravel.
Tolland,	.	.	.	.	.	3,142 16	100 00 ^a	3,242 16	5,500	-	5,500	Grading and concrete culvert.
<i>Hampshire County.</i>												
Amherst,	.	.	.	.	.	\$4,800 00	-	\$4,800 00 ¹	4,435	-	4,435	Macadam.
Chesterfield,	.	.	.	.	.	3,320 00	\$1,100 00 ^a	4,420 00	4,525	-	4,525	Gravel.
Cummington,	.	.	.	.	.	3,633 00	600 00	4,233 00	8,595	1,400	9,995	Gravel.
Easthampton,	.	.	.	.	.	-	2,000 00 ¹	2,000 00	-	2,430	2,430	Macadam.

^a From motor vehicle fees fund, \$250, and \$250 contributed by the town used with this allotment.

¹ Town contributed \$500.

² Town contributed \$400.

¹ Town contributed an equal amount.

² Built with 1909 allotment.

³ Repairs also made on 1,300 feet.

⁴ Work not yet begun.

⁵ Work begun but not completed.

WORK DONE UNDER THE "SMALL TOWN" ACT — *Continued.*

TOWNS.	ALLOTMENTS.			LENGTHS BUILT (FEET).			Types of Roads.
	Previous to 1910.	In 1910.	Total to Nov. 30, 1910.	Previous to 1910.	In 1910.	Total to Nov. 30, 1910.	
<i>Hampshire County — Con.</i>							
Enfield,	\$4,314 00	—	\$4,314 00	23,610	—	23,610	Gravel.
Greenwich,	1,676 00	\$700 00 ¹	2,376 00	2,900	—	2,900	Gravel.
Huntington,	800 00	1,000 00	1,800 00 ²	2,175	3,250	5,425	Gravel.
Middlefield,	1,310 00	—	1,310 00	4,200	—	4,200	Gravel.
Pelham,	2,470 00	750 00 ³	3,220 00	5,300	1,400	6,700	Gravel.
Plainfield,	2,780 00	400 00	3,180 00	3,866	1,000 ⁴	4,866	Gravel.
Prescott,	2,730 00	600 00 ⁵	3,330 00	4,510	1,700	6,210	Grading and gravel.
Southampton,	500 00	750 00 ^{1,2}	1,250 00	—	—	—	—
Westhampton,	3,059 00	450 00 ¹	3,509 00	9,743	1,000	10,743	Gravel.
Williamsburg,	—	500 00 ²	500 00	—	900	900	Macadam.
Worthington,	6,027 00	—	6,027 00	7,550	3,380 ⁷	10,930	Gravel.
	\$37,419 00	\$8,850 00	\$46,269 00	81,409	16,460	97,869	
<i>Middlesex County.</i>							
Ayer,	\$4,000 00	—	\$4,000 00	17,600	—	17,600	Gravel.
Belmont,	2,300 00	—	2,300 00 ²	5,237	—	5,237	Macadam.
Billerica,	5,984 00	—	5,984 00 ²	4,700	3,550 ⁷	8,250	Macadam.
Burlington,	2,500 00	\$1,500 00 ⁶	4,000 00 ⁸	—	—	—	—
Carlisle,	1,836 00	700 00	2,536 00	13,150	3,300	16,450	Gravel.

WORK DONE UNDER THE "SMALL TOWN" ACT — *Concluded.*

TOWNS.	ALLOTMENTS.			LENGTHS BUILT (FEET).			Types of Roads.
	Previous to 1910.	In 1910.	Total to Nov. 30, 1910.	Previous to 1910.	In 1910.	Total to Nov. 30, 1910.	
Norfolk County — Con.							
Millis,	\$4,036 00	\$1,100 00 ⁺	\$5,136 00	6,400	3,800 ⁺	10,200	Gravel.
Norfolk,	—	1,500 00 ⁺	1,500 00 ⁺	—	—	—	—
Plymouth County.							
Abington,	\$1,600 00	\$1,000 00	\$2,600 00 ⁺	29,416	3,800	33,216	Macadam.
Carver,	11,990 00	2,000 00	13,990 00 ⁺	36,639	9,906	46,545	Macadam.
East Bridgewater,	4,142 87	5,000 00	9,142 87 ⁺	6,260	10,840	17,090	Macadam.
Halifax,	2,804 00	1,000 00 ⁺	3,804 00	5,275	2,450 ⁺	7,725	Macadam.
Hanover,	2,368 00	—	2,368 00 ⁺	2,827	—	2,827	Macadam.
Hanson,	8,992 00	1,000 00	9,992 00 ⁺	26,199	4,010	30,209	Macadam.
Lakeville,	700 00	—	700 00	2,640	—	2,640	Macadam.
Norwell,	2,080 00	1,200 00	3,280 00 ⁺	8,980	4,091	13,071	Gravel.
Pembroke,	4,548 00	—	4,548 00	28,471	—	28,471	Gravel.
Plymouth,	1,000 00	—	1,000 00 ⁺	—	2,000 ⁺	2,000	Sand and oil.
Plympton,	2,217 00	450 00	2,667 00	14,653	2,060	16,713	Gravel.
Rocheater,	4,500 00	—	4,500 00	19,027	—	19,027	Macadam.
	\$46,941 87	\$11,650 00	\$58,591 87	154,461	37,617	192,078	

Worcester County.

		\$3,644 00	\$2,000 00*	\$5,644 00	5,600	6,365	11,965	Gravel.
Ashburnham,	.	.	.	.	.	.	.	Gravel.
Berlin,	.	3,624 00	400 00 ¹	4,024 00	12,883	-	12,883	Gravel.
Bolton,	.	4,214 00	200 00 ¹	4,414 00	22,835	-	22,835	Gravel.
Boylston,	.	2,360 00	700 00 ⁷	3,060 00	8,530	-	8,530	Gravel.
Brookfield,	.	900 00	-	900 00	2,500	-	2,500	Macadam.
Dana,	.	2,869 00	800 00	3,669 00	7,375	1,850	9,225	Gravel.
Holden,	.	-	1,000 00	1,000 00 ⁴	-	1,600	1,600	Gravel.
Hubbardston,	.	3,085 00	-	3,085 00	6,655	-	6,655	Gravel.
Mendon,	.	3,464 00	-	3,464 00	16,675	-	16,675	Gravel and repairs.
New Braintree,	.	450 00	-	450 00	1,400	-	1,400	Macadam.
Oakham,	.	3,418 00	500 00 ³	3,918 00	9,410	-	9,410	Gravel and macadam.
Oxford,	.	1,600 00	-	1,600 00 ⁴	6,200	-	6,200	Gravel.
Peterham,	.	6,960 00	-	6,960 00 ⁴	8,635	-	8,635	Gravel.
Shrewsbury,	.	-	300 00 ⁷	300 00 ⁴	-	-	-	-
Rutland,	.	1,804 00	-	1,804 00	2,581	-	2,581	Gravel and macadam.
Southbridge,	.	6,400 00	-	6,400 00 ⁴	2,293	-	2,293	Vitrified paving brick (paved).
Winchendon,	.	4,000 00	-	4,000 00 ⁴	9,210	-	9,210	Gravel.
		\$48,792 00	\$5,900 00	\$54,692 00	122,782	9,815	132,597	

¹ Town contributed \$500.² Work begun but not completed.³ Built with 1909 allotment.⁴ Town contributed an equal amount.⁵ Built with 1909 and 1910 allotments.⁶ Town contributed \$1,000.⁷ Work not yet begun.⁸ Work under 1909 contract not yet completed

WORK DONE UNDER THE "SMALL TOWN" ACT — *Concluded.*

TOWNS.	ALLOTMENTS.			LENGTHS BUILT (FEET).			Types of Roads.
	Previous to 1910.	In 1910.	Total to Nov. 30, 1910.	Previous to 1910.	In 1910.	Total to Nov. 30, 1910.	
Norfolk County — Con.							
Millis,	\$4,036 00	\$1,100 00 ¹	\$5,136 00	6,400	3,800 ²	10,200	Gravel.
Norfolk,	—	1,600 00 ²	1,600 00 ⁴	—	—	—	—
	\$14,235 00	\$2,600 00	\$16,835 00	28,416	3,800	32,216	
Plymouth County.							
Abington,	\$1,600 00	\$1,000 00	\$2,600 00 ¹	3,600	2,260	5,760	Macadam.
Carver,	11,990 00	2,000 00	13,990 00 ¹	36,639	9,906	46,545	Macadam.
East Bridgewater,	4,142 87	6,000 00	9,142 87 ⁴	6,250	10,840	17,090	Macadam.
Halifax,	2,804 00	1,000 00 ¹	3,804 00	5,275	2,450 ²	7,725	Macadam.
Hanover,	2,368 00	—	2,368 00 ⁴	2,827	—	2,827	Macadam.
Hanson,	8,992 00	1,000 00	9,992 00 ⁴	26,199	4,010	30,209	Macadam.
Lakeville,	700 00	—	700 00	2,640	—	2,640	Macadam.
Norwell,	2,080 00	1,200 00	3,280 00 ⁴	8,980	4,091	13,071	Gravel.
Pembroke,	4,548 00	—	4,548 00	28,471	—	28,471	Gravel.
Plymouth,	1,000 00	—	1,000 00 ⁴	—	2,000 ²	2,000	Sand and oil.
Plympton,	2,217 00	450 00	2,667 00	14,653	2,060	16,713	Gravel.
Rochester,	4,500 00	—	4,500 00	19,027	—	19,027	Macadam.
	\$46,941 87	\$11,650 00	\$58,591 87	154,461	37,617	192,078	

SUMMARY.

COUNTIES.	ALLOTMENTS.			LENGTHS BUILT (FEET).		
	Previous to 1910.	In 1910.	Total to Nov. 30, 1910.	Previous to 1910.	In 1910.	Total to Nov. 30, 1910.
Barnstable,	\$7,744 56	\$2,800 00	\$10,544 56	13,330	9,544	22,874
Berkshire,	54,313 00	10,400 00	64,713 00	135,126	21,166	156,292
Bristol,	19,576 00	5,616 00	25,192 00	47,686	6,135	53,821
Dukes,	400 00	-	400 00	-	-	-
Essex,	26,344 00	3,900 00	30,244 00	94,960	7,250	102,210
Franklin,	43,087 00	6,800 00	49,887 00	111,373	11,170	122,543
Hampden,	22,709 16	3,350 00	26,059 16	72,247	4,206	76,453
Hampshire,	37,419 00	8,850 00	46,269 00	81,409	16,460	97,869
Middlesex,	59,100 19	12,800 00	71,900 19	159,255	15,505	174,760
Norfolk,	14,285 00	2,600 00	16,885 00	29,416	3,800	33,216
Plymouth,	46,941 87	11,650 00	58,591 87	154,461	37,617	192,078
Worcester,	48,702 00	5,900 00	54,602 00	122,782	9,815	132,597
	\$383,711 78	\$74,666 00	\$458,377 78	1,022,045	142,668	1,164,713

APPENDIX [M.

APPROPRIATIONS.

Appropriations for the Construction and Repair of State Highways.

1894, chapter 497, section 8,	\$300,000 00
1895, chapter 347, section 3,	400,000 00
1896, chapter 481, section 3,	600,000 00
1897, chapter 340, section 1,	800,000 00
1898, chapter 539, section 1,	400,000 00
1899, chapter 396, section 1,	500,000 00
1900, chapter 442, section 1,	500,000 00
1901, chapter 269, section 1,	500,000 00
1902, chapter 246, section 1,	500,000 00
1903, chapter 280, section 1,	¹ 2,250,000 00
1907, chapter 446, section 1,	¹ 2,500,000 00
	<hr/>
	\$9,250,000 00

Appropriations for the Salaries and Expenses of the Commission, paid from the Treasury of the Commonwealth.

1898, chapter 497, section 1,	\$14,300 00
1899, chapter 367, section 1,	28,500 00
1900, chapter 141, section 1,	28,500 00
1901, chapter 451, section 1,	33,750 00
1902, chapter 67, section 1,	33,750 00
1903, chapters 14 and 485, section 1,	² 43,950 00
1904, chapters 19 and 461, section 1,	² 39,300 00
1905, chapters 36, 431 and 480, section 1,	² 46,150 00
1906, chapters 36 and 140, section 1,	² 49,514 14
1907, chapter 157, section 1,	² 66,950 00
1908, chapter 212, section 1,	² 76,300 00
1909, chapter 127,	⁴ 47,300 00
1910, chapter 139,	⁴ 56,250 00

¹ To cover expenses of construction for a period of five years.² Includes expenses of automobile department.³ Includes expenses of moth suppression and automobile department in part.⁴ Includes expense of moth suppression.

Appropriations for Maintenance, paid from the Treasury of the Commonwealth.

1903, chapter 280, section 2,	\$40,000 00
1904, chapter 316, section 1,	50,000 00
1905, chapter 36, section 1,	60,000 00
1906, chapter 36, section 1,	64,166 66
1907, chapter 157, section 1,	100,000 00
1908, chapters 212 and 657, section 1,	150,000 00
1909, chapters 127 and 493, section 1,	250,000 00
1910, chapter 139, section 1,	200,000 00

PART II.

FIFTH ANNUAL REPORT

OF THE

MASSACHUSETTS HIGHWAY COMMISSION,

FOR THE

FISCAL YEAR ENDING NOVEMBER 30, 1910,

ON

COMPANIES ENGAGED IN THE TRANSMISSION OF
INTELLIGENCE BY ELECTRICITY.

CHAPTER 433, ACTS OF 1906.

PART II.

ANNUAL REPORT OF THE MASSACHUSETTS HIGHWAY COMMISSION CONCERNING COMPANIES ENGAGED IN THE TRANSMISSION OF INTELLIGENCE BY ELECTRICITY.

The fiscal year of 1910 has been an extremely busy year with the commission, and has required it to hold a number of largely attended public meetings upon the new telephone schedule recommended for the metropolitan and suburban district. It has also held many conferences with Prof. D. C. & William B. Jackson, its engineers, the representatives of the telephone company and the representatives of the various organizations throughout the metropolitan and suburban district who are interested in particular rates or particular localities in the district. Besides this, the commission has had many conferences with individual subscribers as to particular rates in particular districts, or as to the question of facilities to be furnished, charges for mileage, toll rates and so forth.

During the year the commission gave formal hearings on the following matters:—

Complaint about the rates and service of the Southern Massachusetts Telephone Company and of the Providence Telephone Company in the town of Norton.

Complaint about the rates of the Southern Massachusetts Telephone Company in the town of Dighton.

Complaint about the rates and service of the New England Telephone and Telegraph Company in Newburyport and from Newburyport to Amesbury.

Complaint about the service of the New England Telephone and Telegraph Company in the towns of Acton, Concord and Maynard.

No recommendations were made to the telephone companies as a result of said complaints and hearings.

There have also been several conferences involving telephone rates in communities outside of the metropolitan and suburban district. While these conferences were not in the nature of the formal hearings provided for by the statute, the commission believes that a great deal of good has been accomplished by them, as in all cases the subscribers have understood the principles involved, and in most cases have been satisfied that the schedules recommended by the commission and its engineers were carefully thought out and prepared, and were an honest attempt, at least, to equalize the cost of telephone service as between the different communities and subscribers involved.

The commission has had at all times the effective co-operation of the telephone company and its officials, both in arranging these interviews and in adjusting the rate schedules so as to meet the legitimate needs of the community. Particular rates will be considered at length a little later in this report.

ANNUAL RETURNS.

The annual returns for the year ending June 30, 1910, which the several telephone and telegraph companies are required by law to submit to the commission, were received and analyzed, and it is gratifying to note that each year shows an increasing comprehension on the part of the companies of the information that the commission requires. Only one company was so dilatory that it was necessary to ask the Attorney-General to take action.

Abstracts of these annual returns are shown in Appendix A, under the same classification as of previous years, namely, large telephone companies, small and nonoperating telephone companies, and telegraph companies.

A comparative statement of statistical information, relating to telephone companies for the years ending June 30, 1910 and 1909, is given herewith:—

State of Massachusetts.

	1910.	1909.	Increase.
Number of subscribers,	243,779	218,642	25,137
Number of instruments,	251,413	225,628	25,785
Number of operators,	3,566	3,423	143
Number of pay stations,	7,159	6,653	506
Gross receipts,	\$11,088,885	\$9,999,459	\$1,089,426
Operating expenses,	\$7,973,634	\$7,366,439	\$607,195
Net earnings,	\$3,115,251	\$2,633,020	\$482,231
Per cent. of expenses to earnings,	71.9	73.7	1.8 ¹
Number of subscribers on party lines,	205,915	184,393	21,522
Number of subscribers on single lines,	37,864	34,249	3,615
Underground system: —			
Conduit, feet,	3,317,552	3,215,744	101,808
Duct, feet,	16,643,388	16,248,854	394,534
Cable, feet,	7,750,912	7,288,549	462,363
Wire, miles,	391,683	353,121	38,562
Submarine system: —			
Cable, feet,	56,882	56,814	68
Wire, miles,	747	702	45
Overhead system: —			
Pole line, miles,	11,217	9,138	2,079
Iron wire, miles,	51,165	40,315	10,850
Copper wire, miles,	164,832	132,695	32,137

¹ Decrease.

It should be noted that the gross receipts represent the earnings (less rebates and discounts) from telephone traffic solely, and the data here given refer only to conditions within the State.

The increase in number of subscribers, in gross earnings and in transmission lines, compared with similar figures for 1909 over 1908, is very marked, and indicates that the demand for telephone service in this State is growing at a very rapid rate.

INVESTIGATION OF THE NEW ENGLAND TELEPHONE AND TELEGRAPH COMPANY CONCERNING ITS PROPERTY, RATES OF SERVICE, ETC., PARTICULARLY ITS RATE SCHEDULE IN THE METROPOLITAN AND SUBURBAN DISTRICT.

These particular schedules were brought up for consideration in December, 1906, and during the early part of 1907 by several petitions. The petitioners complained seriously not only of the particular rates, toll and local, but of the unsatisfactory service that was furnished by the multi-party line in the suburban district.

Fifteen hearings were held, occupying a large amount of time, and a very large number of complainants appeared and presented their views. Various suggestions were made and new rates recommended, charges were made of overcapitalization, and many of the rates were shown to be unjust and unequal, not only as between different classes of subscribers and communities, but as between subscribers of the same class in the same community, assuming that the amount of service secured by any given subscriber had any relation whatever to the amount of money which he should be required to pay for the service received.

Inventory and Appraisal made.

The first step was evidently to ascertain the value of the property and the fair amount of capital on which the company was entitled to receive interest. This was ascertained by an inventory made by the engineers employed by the commission, Prof. D. C. & William B. Jackson, working together with the officials of the telephone company and checking up their results. That inventory was presented to the Legislature last year and is to be found in the report of the highway commission.

Plant required in Excess of Capital issued.

The inventory and appraisal showed that the entire net value of the property of the New England Telephone and Telegraph Company, as inventoried and appraised at its fair replacement value, was something over \$46,000,000, whereas the par value

of the outstanding stock, bonds and notes of the company was slightly below \$39,000,000 on Aug. 31, 1908. In other words, the inventory showed beyond question that the replacement value of the property was in excess of the actual outstanding obligations on which the company was paying interest and dividends.

The total value of the physical plant used for local service in Massachusetts alone was \$22,885,082; total value of local plant in metropolitan Boston was \$4,463,843; in the suburban district surrounding Boston, \$6,446,838. The total value of the local plant in the 11 cities of the Commonwealth outside of Boston, of 50,000 inhabitants or over, was \$6,872,411, and the remainder of the local plant required for service in the smaller cities and rural districts was valued at \$5,979,248.

The total value of the toll plant used in affording intercommunication between subscribers connected with different central offices was \$9,641,913, or a sum equal to 42 per cent. of the total local service plant.

These figures, which are contained in last year's report, are given at this time merely to give a somewhat clearer understanding of the whole situation.

Rate Schedules for the Metropolitan and Suburban District.

The commission, through its engineers, had an exhaustive study made of the traffic, the amount of capital invested per telephone, the number of calls used by the subscribers in various classes of service in each of the seven metropolitan and forty-four suburban exchanges, and the destination of the calls originating in each of these particular exchanges.

The results of this study were very fully given in a report which its engineers presented to the commission Feb. 14, 1910, which was printed and fully distributed.

This report showed that the Boston and suburban district included an area of substantially 436 square miles, comprising the city of Boston and 40 cities and towns surrounding it.

So far as the commission or its engineers could ascertain, there was no such territory in any part of the country which was covered by any particular telephone rate.

Old Rates were Disproportionate and Unequal.

The report showed conclusively that the existing unlimited rates were not only disproportionate and unequal as between the various communities situated in the same relative position to metropolitan Boston, but also that the amount required to be paid for each call made by different subscribers paying for the same class of service and in the same locality was also extremely unequal and disproportionate. The amount of money collected per call from different subscribers in many classes of service varied from $\frac{1}{2}$ cent per call to one subscriber to possibly 8 or 10 cents per call to certain other subscribers. Such a difference in the amount collected was manifestly unjust.

When the amounts paid by those having an unlimited rate and by those having a measured rate were considered, the inequality seemed to be even greater. It was found that the subscribers who had secured unlimited telephones in various classes and localities were often securing their calls at an average of about 2 cents or less each, whereas the subscribers who had measured service were required to pay 6, 8 or 10 cents per call, in order to secure that service. Over half of the telephone company's subscribers were paying for a measured service.

Amount collected per Call.

It was found that the average amount collected by the telephone company in the district for each completed call that was made was a little under $3\frac{1}{2}$ cents. It was therefore evident that a very large loss was entailed upon the company by those subscribers, all of whom were very large users of the telephone, who secured their calls at much under this average, or at 2 cents per call, and that this loss, which was in the aggregate many thousands of dollars per year, was made up by charging an unnecessarily high rate per call to the smaller and moderate users and to persons having measured telephones.

It was evident, therefore, that a radical readjustment of the rate schedules should be made to equalize the rates, especially for the benefit of the smaller users and moderate users.

Reduction of Revenue Fair.

A preliminary study indicated that a reduction of the revenue collected in the metropolitan and suburban districts of from \$300,000 to \$400,000 a year could be made without injustice to the company. It was evident that a horizontal reduction would amount to very little if applied to each individual rate, and as the existing rates were extremely disproportionate and unequal, that the first step was to adjust and equalize the rates which varied from less than 1 cent to 10 cents per call. This was much more important than any horizontal reduction, because it would tend to equalize the rates between different subscribers, and to prevent one class from being required to pay for service rendered to another class.

Subscribers receiving the Service should be required to pay for Such Service.

While it was manifestly impossible in any rate schedule to secure actual uniformity in the amount paid by different subscribers certainly until all of the service was put upon a measured basis, it seemed to the commission that in any rate schedule adopted each class of subscribers and each subscriber should, within some reasonable limits, be required to pay for the amount of service which he had received.

Principles adopted.

In attempting to work out a sound and logical basis for a schedule of telephone rates for the Boston and suburban territory, it seemed to the commission that the following fundamental propositions were perfectly clear:—

That the district to be covered by a given telephone rate should be the territory generally used by the great majority of the subscribers therein, rather than a much larger territory, the greater portion of which is seldom used by the majority of subscribers;

That the company should collect its revenue from calls between more distant portions of the territory from those who

make use of such service, rather than from those who use only local service, involving the use of a much smaller portion of the plant;

That the suburban exchanges have of necessity so much occasion for calling into Boston, and *vice versa*, that the 5-cent toll-rate between Boston and suburban exchanges should be extended to cover the greatest distance consistent with a well-balanced schedule and with fairness to the company;

That business service at least, except for essentially local service, should be placed on a measured basis; and

That, so far as it is possible to do so, the rate schedule should be so made as to furnish telephone service to the small user at the lowest yearly charge that is fair and equitable, and on that as a basis, adjusted to meet the requirements of the medium and larger user.

Method of establishing Rates.

The commission therefore instructed its experts to report a schedule of rates which would not only reduce the net yearly income in the metropolitan and suburban district from \$300,000 to \$400,000 yearly, but which would be founded upon a rate for small users of a maximum charge of 5 cents a message for a minimum number of guaranteed calls.

Report of Commission's Engineers.

The engineers appointed by the commission made an exhaustive report upon all conditions, rates, capital involved, and so forth, which, as has been stated above, was printed in full with its many tables. They also in that report recommended the establishment of certain rate schedules.

The principal features of this report with its recommendations, including the rate schedules, were printed in all of the metropolitan papers, and the commission gave many public hearings at which the representatives of municipalities, of organizations and associations, and individual subscribers appeared and presented their views, recommendations and suggestions. The officials of the company also appeared and presented their suggestions and objections to the proposed rate

schedules. The hearings were adjourned from time to time, until every one who desired to appear at them had been given an opportunity to be heard fully.

Recommended Rate Schedules revised.

The schedules recommended by the engineers were then revised by the commission, and, after careful consideration, several of the improvements advocated by the representatives of the petitioners, who had studied the subject for many years, were deemed to be fair, and were incorporated by the commission in its recommendations to the company.

These changes, we believe, will prove of substantial benefit to the telephone subscribers. The most important was the extension of the 5-cent toll from $7\frac{1}{2}$ miles, as suggested by Professor Jackson, to 8 miles, as recommended to the company.

While no line can be drawn at any point which will not create apparent inequalities, the 8-mile limit seemed, on the whole, the fairest one to adopt at the present time.

The second important change was that all subscribers to the measured service should be entitled to include in their calls, while they were required to pay 5 cents for them, all 5-cent toll calls, to wit, all calls that were made to any exchange in the district or within an 8-mile radius.

General Principles involved.

The principles involved and the rates recommended are fully stated in a letter of the commission to the company, recommending the adoption of the new rate schedules, a copy of which follows:—

MASSACHUSETTS HIGHWAY COMMISSION,
15 ASHBURTON PLACE,
BOSTON, MASS., Aug. 23, 1910.

To the President and Board of Directors of the New England Telephone and Telegraph Company, 101 Milk Street, Boston, Mass.

GENTLEMEN:—The Massachusetts Highway Commission desires to make certain recommendations or suggestions in relation to telephone rates in the metropolitan and suburban district.

RATES AND SERVICE COMPLAINED OF.

These rates were brought up for consideration in December, 1906, and during the early part of 1907, by several petitions.

The representatives of the petitioners presented recommendations and suggestions not only as to particular rates, toll and local, but complaints as to the service, charges of overcapitalization, and that the rates were not only excessive and inequitable in themselves, but were disproportionate and unequal, as between the various communities which occupied similar relations to Boston.

Fifteen public hearings were held at that time, all being largely attended.

EXPERT EXAMINATION OF THE BOOKS OF THE COMPANY.

In order to eliminate the innumerable questions of fact which were in dispute, it was agreed to by all parties that it was desirable to have the books of the company examined by an impartial, disinterested and reliable accountant.

Mr. A. R. Patterson was selected for this accounting and this selection was approved by the parties chiefly interested. His report was made in April, 1907, and certain improvements in methods of accounting and administration were suggested to your company and were put into effect.

In September, 1907, Mr. George Albree was appointed as a special agent to examine the accounts of your company, and in December he made a report which was printed.

EXPERT EXAMINATION AS TO RATES, PROPERTY, ETC.

In January, 1908, other public hearings were held, and as a result it was decided that Prof. D. C. Jackson, of the Massachusetts Institute of Technology, should be employed to report upon certain specific questions of rates and service, and as to the necessity of having an inventory made of the property of your company.

Professor Jackson was selected not only because he was head of the department of electrical engineering at the Massachusetts Institute of Technology, and had practical experience from being employed by business concerns as an expert on matters connected with electric light and power, but also because he had recently made a study and report on telephone rates for the city of Chicago. He is the president of the American Institute of Electrical Engineers.

The specific questions asked were:—

1. Is an appraisal of the plant necessary to enable the commission to establish equitable rates?
2. Can a reduction in the toll rates now in force in the Boston

and suburban district be made without prejudice to the general problem?

3. Should the multi-party lines in the Boston and suburban district be changed to two-party lines with divided ringing?

REDUCTION IN TOLL RATES RECOMMENDED WITHIN 5 MILES OF BOSTON.

Professor Jackson, in his report under date of March, 1908, replied that a reduction in the toll rates in the Boston and suburban district from 10 cents to 5 cents could be made and without prejudice, and that an inventory and appraisal should be made as a prerequisite to any revision of rates. This reduction was recommended by the commission and was put into effect in April of that year.

INVENTORY AND APPRAISAL OF PROPERTY ORDERED.

The making of the inventory and appraisal, as recommended, was assented to by your company, and the Legislature of 1908, acting upon a special message from the Governor, gave the commission the necessary authority, the Commonwealth being reimbursed for all expenditures by a special tax collected from your company.

Professor Jackson was retained to supervise the taking of the inventory and to make the appraisal of the property.

On his suggestion, the inventory and appraisal were made to include not only the plant in Massachusetts, but all the plant of the New England Telephone and Telegraph Company in adjoining States, in order to make it complete.

INVENTORY AND APPRAISAL COMPLETED.

In March, 1909, the inventory and appraisal, involving an actual count in the field of all poles, wires, crossbars and equipment, as well as all land, buildings, exchanges, conduits, equipment, etc., were completed.

VALUE OF PROPERTY IN EXCESS OF CAPITAL.

This showed that the actual replacement value of the plant and property of your company was nearly 20 per cent. in excess of the par value of all the certificates of indebtedness outstanding, whether in the form of stock, bonds or notes, and this fact you have not disputed.

STUDIES OF TRAFFIC AND OF REVENUE AND EXPENSES ORDERED.

It then became evident that to make this information of value in determining what rates would be reasonable, equitable and proportionate, not only as between different classes of users in the same locality, but as between different localities, it was necessary to have a complete study of the traffic and the expenses of operation, including maintenance, as well as of the amount of revenue collected.

The commission thereupon recommended this further study to the Governor, and the recommendation was by him presented to the Legislature of 1909 by a special message.

This resulted in the passage of a resolve authorizing such a study, your company interposing no objections.

METROPOLITAN AND SUBURBAN DISTRICT SELECTED FOR STUDY.

As the petitions for a readjustment of rates had come from persons in the Boston and suburban district, and because that district contained about one-half of the property of your company in Massachusetts and nearly one-half of the telephones, besides furnishing over half of its gross receipts, that district was primarily selected for this special study.

EXPENSE INVOLVED.

For these investigations the commission has expended over \$43,000, which your company has repaid to the State treasury.

During all this time the commission and its experts have had the most hearty and efficient co-operation of all your officials and employees, many of whom were engaged for many months in collecting and collating the required information. It realizes that the actual expenditures of your company for these purposes have been several times as large as those mentioned above.

The commission believes that important improvements have already been secured, both for the subscribers and the company, through the changes in rates and accounting which have already been put into operation.

NEW RATES DESIRABLE.

The commission hopes and believes that the rates which are recommended to you herewith will prove of sufficient value to justify this great expenditure, both of time and money.

REDUCTION IN REVENUE FAIR.

The preliminary studies indicated that a reduction of from \$300,000 to \$400,000 could be made in the net yearly income of your company from the metropolitan and suburban district with entire fairness to your company and without impairing the efficiency of the service. This would amount to a horizontal reduction of only a small percentage per telephone if applied upon each individual rate.

PRESENT RATES INEQUITABLE AND DISPROPORTIONATE.

The traffic study showed conclusively that the rates per call collected from individual subscribers in different classes varied from 10 cents to less than 1 cent, certain of the larger users securing calls at a cost of less than half a cent.

Such a variation is manifestly unjust and inequitable.

COLLECTIONS PER CALL.

The gross collections of your company for exchange service in the entire metropolitan and suburban district was slightly less than $3\frac{1}{2}$ cents for each completed call.

It is plain, therefore, that the large users having unlimited rates covering the whole of the suburban area, who pay from $\frac{1}{2}$ cent to 2 cents per call, are paying less than cost, and this has to be made up by the smaller users paying from 6 to 10 cents per call.

This latter collection was necessary to enable your company to secure an adequate revenue from the subscribers in the district as a whole, but was necessary only because a proportionately few subscribers obtained their service at this extremely low and unprofitable rate, sometimes so low that it does not even pay the wages of the operator, to say nothing of the much larger expenses required for interest, maintenance, taxes, etc. The evident injustice of this condition the commission has sought to abate.

REVISION AND READJUSTMENT ESSENTIAL.

There appears to be no doubt that a revision and readjustment of rates can fairly be made which will reduce the maximum rate of the smaller users for service within a reasonable district to 5 cents per call, and that this will be more beneficial than any small horizontal reduction which could be made. Moreover, a horizontal reduction could only tend to accentuate still further the inequalities of the present schedules.

The intricacy of the problem as well as the delicacy of the telephone rates is well illustrated by the fact brought out by the traffic studies, that apparently a collection of only $3\frac{1}{2}$ cents for each completed call would somewhat more than produce the total gross revenue of the company in this district, whereas a reduction to $3\frac{1}{2}$ cents would eliminate all surplus revenue and leave nothing at all for unforeseen necessities.

In attempting to work out a sound and logical basis for a schedule of telephone rates for the Boston and suburban territory, it seemed to the commission that the following fundamental propositions were perfectly clear:—

That the district to be covered by a given telephone rate should be the territory generally used by the great majority of the subscribers therein, rather than a much larger territory, the greater portion of which is seldom used by the majority of subscribers;

That the company should collect its revenue for calls between more distant portions of the territory from those who make use of such service, rather than from those who use only local service, involving the use of a much smaller portion of the plant;

That the suburban exchanges have of necessity so much occasion

for calling into Boston, and *vice versa*, that the 5-cent toll rate between Boston and suburban exchanges should be extended to cover the greatest distance consistent with a well-balanced schedule and with fairness to the company;

That business service at least, except for essentially local service, should be placed on a measured basis; and

That, so far as it is possible to do so, the rate schedule should be so made as to furnish telephone service to the small user at the lowest yearly charge that is fair and equitable, and, on that as a basis, adjusted to meet the requirements of the medium and larger user.

METHOD OF ESTABLISHING RATES.

The commission therefore instructed its experts to report a schedule of rates which would not only reduce the net yearly income in the metropolitan and suburban district from \$300,000 to \$400,000 yearly, but which would be founded upon a rate for small users of a maximum charge of 5 cents a message for a minimum number of guaranteed calls.

ZONES RECOMMENDED.

This resulted in the experts reporting a recommendation for the establishment of zones, and a new schedule of rates therein, as the only practicable way by which rates can be secured in this district which are fair, proportionate and equitable.

The establishment of zones seems the only practicable means of securing the lowest possible rates for the moderate user of calls, who needs only a limited territory.

ZONES NECESSARY IF UNLIMITED TELEPHONES ARE PERMITTED.

It is the only possible way by which any unlimited telephone service can properly be retained and an adequate revenue secured from the district without charging the loss to the small users of limited means, or by which the maximum rate per call can be reduced to 5 cents.

REDUCED TOLLS RECOMMENDED.

The toll charges recommended cover as long a distance at as low a rate as seems, even in such a densely populated district, compatible with securing for the company an adequate revenue.

RATE SCHEDULE RECOMMENDED.

The report and schedule of rates recommended by the experts were placed before the public, and public hearings were held in April and June of this year. At these hearings representatives of the petitioners, of your company, and others, appeared and presented their views.

ALL VIEWS CAREFULLY CONSIDERED.

The commission has very carefully considered the report of its experts and the views so ably presented by the gentlemen present at the hearings, both as individuals and as representatives of various organizations, including your company.

It has a full appreciation of the importance of the subject to the community and your company.

After giving careful consideration to all the objections that were presented to Professor Jackson's report and the schedules he recommended, by the petitioners, their representatives, individuals and your company, the commission believes that it would be wise at the present time to adopt a new schedule of rates.

NEW PLAN AND RATES ADVISABLE.

The commission believes that the plan for the territory and the schedule of rates recommended herewith will prove of great benefit to the community and will at the same time produce an adequate revenue for your company.

The commission fully appreciates that it is a human impossibility to lay out an essentially new rate schedule for telephone service, especially in such a complex district as the one under consideration, and be certain that in all respects the schedule will prove in the light of experience to be entirely fair to all parties and to be an equitable and well-balanced schedule. It feels confident, however, that the schedule herewith presented is based on sound principles, and that it will unquestionably in the long run tend to improve the service and increase the value of the telephone in this community.

MODIFICATIONS RECOMMENDED.

The plan and schedules are contained in a pamphlet of rate schedules sent herewith.

They consist of the rates recommended by the commission's experts, D. C. and Wm. B. Jackson, upon which the hearings were held, with certain modifications which the commission deems advisable to remove some reasonable objections to the proposed schedules as originally presented.

RETENTION OF MEASURED RATES COVERING THE WHOLE DISTRICT.

The commission recommends the retention at the present time of the existing measured private branch exchange rates for the metropolitan and suburban district.

It also recommends the retention of the single-party measured-service rate for the metropolitan and suburban district.

This will provide two rates covering all of the present area, for which there seems to be a considerable demand at the present time.

FIVE-CENT TOLLS FOR 8 MILES.

The commission recommends that the 5-cent toll within the district be made to cover a distance of 8 miles, instead of 5 miles, as at present, or of $7\frac{1}{2}$ miles, as recommended by its experts.

The commission believes that a 5-cent toll rate for each 8 miles or fraction thereof in the suburban district will prove a reasonable as well as a desirable rate, and will produce a sufficient revenue in this district, within which there is so much traffic.

It does not wish, however, to be understood as implying that such a rate would be applicable in other communities where like conditions do not exist. It does not feel competent at the present time to decide what would be proper rates for toll service in other cases.

MEASURED-SERVICE GUARANTEE TO INCLUDE 5-CENT TOLLS.

It also recommends that the minimum yearly guarantee of 5 cents a call for the one and two-party measured service in both the metropolitan and suburban districts shall include all calls within the 5-cent toll radius, to wit, 8 miles.

This will provide a measured service at 5 cents a call for all the metropolitan exchanges and for all the suburban exchanges that are within 8 miles, both in and out; it will also allow a similar 5-cent service, not only within any given zone, but also within 8 miles of the subscriber's exchange, provided the exchange called is within the metropolitan and suburban district.

After the *guaranteed* calls are used the calls within the *zone* are to be reduced to 3 cents.

FOUR-PARTY COIN-BOX GUARANTEES TO COVER COLLECTIONS FOR THE YEAR.

The commission recommends that the four-party coin-box guarantees be made up from the yearly receipts, and that all tolls deposited for service in the metropolitan and suburban district be counted as part of the guarantee. This will enable the subscriber who has paid for more calls than he has used in any one month to secure the full benefit of the 5-cent rate during the year, provided he uses not less than the number of calls guaranteed.

TEN-CENT TOLLS TO BE REDUCED TO 5 CENTS FOR CONTIGUOUS EXCHANGES WITHIN 5 MILES OF ANY SUBURBAN EXCHANGE.

The commission also recommends that between exchanges within the outlying borders of the present suburban district and contiguous exchanges across the border, the present local toll rate of 10 cents be reduced to 5 cents in all cases where the distance between such exchanges does not exceed 5 miles.

ADOPTION OF PLAN RECOMMENDED.

The commission recommends the adoption of this plan and rate schedules by the company and the discontinuance of the company's present rate schedules as soon as it may be found practicable to make the necessary changes with the least confusion and inconvenience to subscribers.

SUBSCRIBERS BENEFITED.

The commission believes that the majority of telephone users, under these schedules, will be able to secure their necessary service at a less aggregate cost than heretofore, and that this will be especially true of small users.

THE PROPOSED PLAN IS FLEXIBLE.

The schedules recommended will, the commission believes, adapt themselves readily to such minor changes as experience and further study may demonstrate to be desirable without disturbing the fundamental principles of the entire plan.

NEW RATES WILL IMPROVE SERVICE AND INCREASE THE NUMBER OF SUBSCRIBERS.

The particular service which is responsible for most of the legitimate criticism of the service furnished by the company in the past is the multi-party line.

The objection to this class of service should be largely eliminated by the substitution of two-party lines for the multi-party lines.

The divided ringing which is recommended should almost entirely do away with all reasonable criticism, and will secure for the small user practically as exclusive service as that enjoyed by his more fortunate neighbors.

The commission is also confident that the proposed rates will, when put into effect, not only lead to great improvements in the service, but also to substantial increases in the number of subscribers, thus increasing the community value of the telephone as well as the company's revenue.

EXPERIENCE IN OTHER COMMUNITIES.

This belief is confirmed by the experience in other communities of large population where almost invariably the districts and rates are founded upon the same general principles as those herein recommended.

Such conditions as now exist in this territory, with its large area and so many telephones, requiring 52 exchanges, have not been found outside of Boston and its immediate vicinity. In other large cities the smaller districts, with their attendant low rates, have invariably, so far as can be ascertained, resulted in a larger number of subscribers in proportion to the population.

It is believed that such districts and rates must have proven profitable as well as serviceable, or they would not have been so universally adopted by other telephone companies, both in this country and abroad.

COMPANY'S OBJECTIONS NOT CONCLUSIVE.

It seems to the commission that the objections made by your company to the proposed rates raised questions which are essentially matters of detail and not of principle, and which can only be solved by a fair trial.

It believes that your company must concede the soundness of the fundamental principles involved.

TRIAL OF NEW RATES RECOMMENDED.

In its study of this most complex and intricate subject the commission has had the benefit of the services and advice of the most competent experts, both in engineering and accounting, which it could obtain.

It has had the benefit of the suggestions and arguments of the petitioners and their able counsel as well as the valuable assistance which has come from the ready co-operation of the officers and representatives of your company.

The commission therefore recommends the adoption of the accompanying plan and rate schedules, with confidence that, if put in complete operation, the system, as suggested, will prove of lasting benefit to the users of the telephone, the entire community, and to the company as well.

Respectfully,

By order of the Massachusetts Highway Commission,

F. I. BIELER,
Secretary.

TOLL RATES BETWEEN EXCHANGES WITHIN THE BOSTON AND SUBURBAN DISTRICT.

Five cents from any exchange to any other within the distance of 8 miles, by air line; and 5 cents additional for each additional 8 miles or fraction thereof.

SUNDRY SPECIAL SERVICE AND AUXILIARY EQUIPMENT.

DAY-TO-DAY SERVICE. — SPECIAL LINE.

Charge to subscriber: —

Cost of labor.

15 per cent. of cost of material.

First day's service, \$5 00

Each day thereafter, 1 00

Measured, One-pa

REPORT OF THE
COMMISSIONER OF THE
HIGHWAY COMMISSION
FOR THE YEAR 1911

ALBANY, N. Y., 1912.

PRINTED BY THE COMMISSIONER OF THE

STATE PRINTING OFFICE.

1912

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1912

Unlimited,	{ Or
	{ To
Measured,	{ Or
	{ To
Coin-box, . . .	

Receiving.

Short-term.

Mileage.

Rece

Short

Mile

No. 54.] CENTRAL OFFICES WITHIN EACH ZONE. 167

EXPRESS CALL SERVICE. — SPECIAL LINE.

For transmission of express calls only (metropolitan district only): —

Special line,	\$72 00
Party line,	36 00

EXPRESS OFFICE. — SPECIAL LINE.

For the receipt of express calls only (metropolitan district only): —

Business,	\$60 00
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Subscriber pays \$5 per month if calls are 1,000 or less per month; for calls in excess of 1,000 up to 2,500 per month, the company pays subscriber 1 cent per 10 calls; for calls in excess of 2,500 per month, the company pays subscriber 2 cents per 10 calls.

TRANSFER MILEAGE.

Mileage charge from telephone exchange for temporary circuit: —

For special circuit: —

One mile or less,	\$10 00
Each $\frac{1}{4}$ mile or less, beyond first mile,	2 50

For party line circuit: —

One mile or less,	5 00
Each $\frac{1}{4}$ mile or less, beyond first mile,	1 50

CENTRAL OFFICES WITHIN EACH ZONE OF THE ZONE SYSTEM.

ZONE.	Central Offices included in Zone.
Arlington, . . .	Arlington, Bedford (included in Lexington), Belmont, Cambridge, Lexington, Medford, Somerville, Winchester.
Belmont, . . .	Arlington, Bedford (included in Lexington), Belmont, Cambridge, Lexington, Newton North, Waltham, Watertown (included in Newton North), Weston (included in Waltham).
Braintree, . . .	Braintree, Holbrook (included in Randolph), Milton, Quincy, Randolph, Weymouth.
Brighton, . . .	Brighton, Brookline, Cambridge, Newton North, Newton South, Watertown (included in Newton North).
Brookline, . . .	Brighton, Brookline, Jamaica Plain, Newton North, Newton South, Roxbury, Watertown (included in Newton North), Cambridge.

CENTRAL OFFICES WITHIN EACH ZONE OF THE ZONE SYSTEM — *Continued.*

ZONE.	Central Offices included in Zone.
Cambridge, . . .	Arlington, Belmont, Brighton, Cambridge, Charlestown, Newton North, Somerville, Watertown (included in Newton North), Brookline.
Canton, . . .	Canton, Dedham, Holbrook (included in Randolph), Hyde Park, Milton, Norwood, Randolph, Westwood (included in Dedham).
Charlestown, . . .	Cambridge, Charlestown, Chelsea, East Boston, Everett, Somerville.
Chelsea, . . .	Charlestown, Chelsea, East Boston, Everett, Revere.
Cohasset, . . .	Cohasset, Hingham, Hull.
Dedham, . . .	Canton, Dedham, Hyde Park, Jamaica Plain, Needham, Norwood, Westwood (included in Dedham).
Dorchester, . . .	Dorchester, Jamaica Plain, Milton, Quincy, Roxbury, South Boston.
East Boston, . . .	Charlestown, Chelsea, East Boston, Revere, Winthrop.
Everett, . . .	Charlestown, Chelsea, Everett, Malden, Medford, Revere, Somerville.
Hingham, . . .	Cohasset, Hingham, Hull, Weymouth.
Hull, . . .	Cohasset, Hingham, Hull.
Hyde Park, . . .	Canton, Dedham, Hyde Park, Jamaica Plain, Milton, Westwood (included in Dedham).
Jamaica Plain, . . .	Brookline, Dedham, Dorchester, Hyde Park, Jamaica Plain, Milton, Newton South, Roxbury, Westwood (included in Dedham).
Lexington, . . .	Arlington, Bedford (included in Lexington), Belmont, Lexington, Lincoln, Waltham, Weston (included in Waltham), Winchester, Woburn.
Lincoln, . . .	Bedford (included in Lexington), Lexington, Lincoln, Waltham, Weston (included in Waltham).
Malden, . . .	Everett, Malden, Medford, Melrose, Revere.

CENTRAL OFFICES WITHIN EACH ZONE OF THE ZONE SYSTEM — *Continued.*

ZONE.	Central Offices included in Zone.
Medford, . . .	Arlington, Everett, Malden, Medford, Melrose, Somerville, Stoneham, Winchester.
Melrose, . . .	Malden, Medford, Melrose, Stoneham, Wakefield.
Milton, . . .	Braintree, Canton, Dorchester, Holbrook (included in Randolph), Hyde Park, Jamaica Plain, Milton, Quincy, Randolph.
Needham, . . .	Dedham, Needham, Newton South, Wellesley, Westwood (included in Dedham).
Newton North, . . .	Belmont, Brighton, Brookline, Cambridge, Newton North, Newton South, Newton West, Waltham, Watertown (included in Newton North), Weston (included in Waltham).
Newton South, . . .	Brighton, Brookline, Jamaica Plain, Needham, Newton North, Newton South, Newton West, Watertown (included in Newton North), Wellesley.
Newton West, . . .	Newton North, Newton South, Newton West, Waltham, Watertown (included in Newton North), Wellesley, Weston (included in Waltham).
Norwood, . . .	Canton, Dedham, Norwood, Westwood (included in Dedham).
Quincy, . . .	Braintree, Dorchester, Milton, Quincy, Weymouth.
Randolph, . . .	Braintree, Canton, Holbrook (included in Randolph), Milton, Randolph, Weymouth.
Reading, . . .	Reading, Stoneham, Wakefield, Woburn.
Revere, . . .	Chelsea, East Boston, Everett, Malden, Revere, Winthrop.
Roxbury, . . .	Brookline, Dorchester, Jamaica Plain, Roxbury, South Boston.
Somerville, . . .	Arlington, Cambridge, Charlestown, Everett, Medford, Somerville.
South Boston, . . .	Dorchester, Roxbury, South Boston.

CENTRAL OFFICES WITHIN EACH ZONE OF THE ZONE SYSTEM — *Concluded.*

ZONE.	Central Offices included in Zone.
Stoneham, . .	Medford, Melrose, Reading, Stoneham, Wakefield, Winchester, Woburn.
Wakefield, . .	Melrose, Reading, Stoneham, Wakefield.
Waltham, . .	Bedford (included in Lexington), Belmont, Lexington, Lincoln, Newton North, Newton West, Waltham, Watertown (included in Newton North), Wellesley, Weston (included in Waltham).
Wellesley, . .	Needham, Newton South, Newton West, Waltham, Wellesley, Weston (included in Waltham).
Weymouth, . .	Braintree, Hingham, Holbrook (included in Randolph), Quincy, Randolph, Weymouth.
Winchester, . .	Arlington, Bedford (included in Lexington), Lexington, Medford, Stoneham, Winchester, Woburn.
Winthrop, . .	East Boston, Revere, Winthrop.
Woburn, . . .	Bedford (included in Lexington), Lexington, Reading, Stoneham, Winchester, Woburn.

EXCHANGES IN EACH GRADE OF ZONES.

Grade H.	Grade G.	Grade F.	Grade E.
Arlington.	Dedham.	Braintree.	Cohasset.
Belmont.	Hyde Park.	Canton.	Hingham.
Brighton.	Lexington.	Chelsea.	Hull.
Brookline.	Malden.	East Boston.	Lincoln.
Cambridge.	Melrose.	Needham.	Norwood.
Charlestown.	Newton West.	Randolph.	Reading.
Dorchester.	Quincy.	Wakefield.	
Everett.	Revere.	Weymouth.	
Jamaica Plain.	Stoneham.	Winchester.	
Medford.	Waltham.	Winthrop.	
Milton.	Wellesley.	Woburn.	
Newton North.			
Newton South.			
Roxbury.			
Somerville.			
South Boston.			

Equalization of Rates the Desideratum.

The object which the commission attempted to accomplish was the equalization and readjustment of rates as fairly as possible between different subscribers, and to recommend a schedule of rates which should, within reasonable limits, require a person who received the benefit of service rendered to pay for the same and not have it charged to some other subscriber who did not require or receive any benefit from such service.

It was essentially a readjustment of rates rather than a reduction of rates, although so far as the commission or its engineers could ascertain the proposed schedule, as recommended, would reduce the revenue of the company \$300,000 to \$400,000 a year. The rates in the schedule recommended were so adjusted that in no event would any small user be required to pay more than 5 cents a call for calls within a limited area, provided he used the minimum number of calls to which he was entitled during the year. In the past, as has been stated above, he had been required to pay 6, 8 and 10 cents per call.

The rates recommended for the small user were placed at the lowest amount of guaranteed yearly charge compatible with securing a reasonable return to the company for the capital and plant involved, for repairs, maintenance and so forth. A further reduction to 3 cents per call was recommended, after the minimum guarantee had been received.

The company agreed to adopt the schedule of rates recommended by the commission in the following letter:—

Boston, Aug. 30, 1910.

The Honorable Massachusetts Highway Commission, 15 Ashburton Place, Boston, Mass.

GENTLEMEN:—Your communication of August 23 current, containing certain recommendations in relation to telephone rates and service in the metropolitan and suburban district, was presented by me to the Board of Directors of this company.

Such objections to the rates originally proposed as were raised by the company's subscribers have been largely removed through the modifications of the original plan adopted by your honorable Board. Such objections as were advanced by the company in the interests of what

is believed to be sound administration of its business can, it is true, be established only upon trial.

Certain features of the proposed plan are new, and it is somewhat difficult to foresee just what they may lead to or just what they may seem to establish in the way of precedents. In view of the fact that the company's objections are based more upon this uncertainty than upon any demonstrable conviction that the plan may prove to be unfairly burdensome, the company has decided to give the entire plan a complete and impartial trial. Accordingly, I am instructed by vote of the Board of Directors to state that the company will put into effect the plan and rate schedules recommended by your honorable Board.

This decision of the company is upon the assumption that its action is without prejudice and that experience may show the necessity for modifications or readjustments.

It is impossible to state at this time when the new rates can properly be put into effect. It is clear that many of the existing rates must remain for at least six months or a year. Meanwhile, the company will make every effort to begin to furnish service under the new rates, to those who desire it, by November 1.

I have the honor to be,

Very respectfully,

(Signed) JASPER N. KELLER,

President New England Telephone and Telegraph Company.

Proposed Rates compare favorably with Rates in Other Cities throughout the United States.

The commission is satisfied, so far as it can ascertain, that the inventory and appraisal which were made by its engineers, under its direction, and their studies of traffic, revenue, etc., are more complete and scientific than any others which have been made in this country or abroad. These studies had cost, up to Dec. 1, 1910, \$44,646.93, which has been paid out of the treasury of the Commonwealth, and will be reimbursed to the Commonwealth by the telephone company, under the act providing therefor.

Besides this expenditure, the company has had a large force of employees constantly at work, and has spent many times that amount of money in these investigations. The commission, therefore, feels assured that the report of its engineers is based upon a more scientific and complete study of plant, traffic and all existing conditions than has been the case elsewhere.

It did not feel, however, that it should rely on these studies

alone in recommending a schedule of telephone rates, but it should also examine into the telephone rates in other cities throughout the United States where conditions are as nearly similar as possible to those existing in the metropolitan and suburban district here. Consequently, quite an exhaustive study was made of those rates, and the results were presented by the commission's engineers in voluminous tables which it seems unnecessary to print.

The commission realizes that precisely similar conditions probably do not exist in any two large cities, and that therefore this comparison would have no conclusive value. It has, however, a certain value for purposes of comparison, and as showing that the rates recommended for service in this community are favorable to the subscribers as compared with the rates in force in other communities.

A comparison of the rates shows that the new schedule of rates as recommended by the commission is, on the whole, favorable to the telephone subscribers in the metropolitan and suburban district, not only as to exchange rates, but as to local toll rates, and that this applies not only to the unlimited business and residence rates, but to the measured business and residence rates.

For these comparisons, cities were selected where the rates could be secured, and where the conditions approached those existing here, as nearly as possible, both as to population and area served.

On the whole, the areas served by the unlimited rates in other cities were usually found to be smaller than those which are included in the proposed new districts here.

The number of telephones in the selected cities is, as near as possible, the same as the number here.

Comparison of Metropolitan Rates with Other Rate Schedules.

A comparison of the new metropolitan rates (including the seven Boston exchanges) was made with those of 8 cities that have, except Philadelphia and Chicago, a relatively similar number of telephones. The cities selected for comparison were Baltimore, Chicago, Omaha, Philadelphia, Pittsburg, San Francisco, St. Louis and New York (Manhattan and Bronx). The

comparison of rates showed that the measured business rate, in nearly every case, is higher in these other cities than the rate proposed for the metropolitan district. Two cities, Chicago and San Francisco, have a lower rate after a very large number of calls have been made, but Omaha is the only city that has a lower guaranteed price for a one-party line.

The areas in the Manhattan and Bronx zones around New York City are smaller, on the whole, than the areas included in our districts.

Unlimited Rates compared.

A comparison of the unlimited rates in these same 8 cities showed that Omaha is the only city with a lower rate for single-party, unlimited business lines. New York City has no unlimited business or residence telephones. In St. Louis and Chicago the rate is the same as that recommended by the commission, though the Chicago rate, so far as the present studies show has proved to be unremunerative. It should also be remembered that in 6 out of the 8 cities compared there are two telephone companies.

Proposed District Rates Low.

A comparison was also made of the rates recommended by the commission for its large, so-called "H" districts with the rates in some 17 other cities where the conditions are as nearly equal as possible, the areas, number of telephones and population being about the same. The 17 cities were Columbus, Denver, Detroit, Indianapolis, Jersey City, Los Angeles, Louisville, Milwaukee, Minneapolis, Newark, New Orleans, Providence, Rochester, St. Paul, Seattle, Toledo and Washington. There is a competing telephone company in 8 of these 17 cities.

Here, again, the comparison is favorable to the rates recommended by the commission.

More than half the flat rates for business service are higher than those recommended for our "H" districts. The same comparison of measured rates in these 17 cities with our "H" district rates showed that most of the measured business rates are higher in those cities than the rates recommended by the commission, and that, of the measured residence rates, about half are higher and half are lower.

Recommended Rates in Smaller Districts.

A further comparison was made to determine how the rates recommended by the commission in its smaller, "G", "F" and "E" districts, covering the smaller suburbs surrounding the metropolitan district, compare with rates in force in other localities, especially those around New York City. Here the districts compared are not quite so similar because in some instances around New York City the communities are extremely small.

This comparison, however, showed that the rates recommended by the commission are, on the whole, lower than those in force in the suburbs surrounding New York City, — sometimes very materially lower.

Comparison with Jersey City.

Another comparison was made of the rates of the New Jersey Telephone Company in New Jersey, near New York, and the Boston district rates in the "H", "G" and "E" districts are, on the whole, lower than those in force in New Jersey.

The new flat rates recommended are much lower than those in force around New York City, and the measured rates are lower except that in New York there is sometimes a reduction for a very large number of guaranteed calls.

The new four-party, residence, coin box, with a \$21 guarantee, compares very favorably with their guarantee of \$30.

A comparison was also made with the rates in force in the Long Island division of the New York and New Jersey telephone companies, including Brooklyn and suburbs. Here, again, the comparison is favorable to the metropolitan Boston rates, and the measured rates here were found to be materially lower than the rates in force there.

Suburban Toll Rates.

A comparison was made of the suburban toll rates recommended by the commission and those in force in some other cities. The rate in Chicago for a radius of 15 miles around the city hall was found to be 10 cents for a three-minute conversation, with an additional charge of 5 cents for each addi-

tional minute of conversation. Outside of the 15-mile radius the Chicago rate was found to be 10 cents for 12 miles or less, and 15 cents for distances between 12 and 20 miles.

In New York City the rate is apparently founded upon a charge of 5 cents for each 4 miles up to 12 miles, with some discounts for users who contract for a large number of calls in advance, to be paid for whether used or not. It will be seen that this rate is not nearly as favorable as the rate of 5 cents for each 8 miles or fraction thereof, recommended by the commission.

So far as the commission has been informed, there is also an additional charge in New York of 5 cents for each river crossing, therefore it will be seen that the toll rates recommended by the commission are very favorable as compared with rates existing elsewhere.

New Rates go into Effect.

The company has been carrying out its part of the agreement by putting the new rates into effect in a business-like way. While there were a number of protests, particularly from the subscribers to the multi-party lines, covering the whole suburban area, there was also a very much larger number of people who found in the new schedule rates and service better adapted to their requirements than those under the old schedule.

Sufficient Time allowed for New Rates to be understood.

It was manifest that no schedule of rates which involved over 75,000 telephone subscribers could be put into effect at any one time, and that it would require many months before all the subscribers could fully understand the new rates and ascertain what their requirements were, and which rate best suited their particular needs. The company therefore agreed with the commission, and afterwards assured a committee representing some of the multi-party line subscribers, that they would not arbitrarily cancel existing rates prior to May 1, 1911.

It soon became evident that the new rates were not understood by the subscribers to the multi-party suburban telephones, of whom there were about 30,000, and it seemed fair that they

should be given an ample opportunity to study and understand the rates before there was any termination of existing contracts. The commission therefore recommended to the company that this class of subscribers should be allowed to continue their present contracts and retain their present rates covering its existing territory until Nov. 1, 1911. This the company agreed to.

New Rates desired.

While the company had not agreed to put the new rates into effect until Nov. 1, 1910, it was in a position, in certain exchanges, to make contracts under those rates before that time. Consequently, it notified the public that it was prepared to execute contracts for service under the new schedule. It had its agents prepared to explain the rates to subscribers not only at its central office on Milk Street, but at an office on Tremont Street as well, and besides this it had a large number of its contract agents on a central switchboard at its main station, to answer all inquiries and prepare contracts for all those desiring the new rates.

Subscribers to New Rates.

It must be remembered that while there are something over 100,000 telephone instruments in the metropolitan and suburban district many of these are connected with private branch exchanges and extension sets, so that the number of actual subscribers is something over 75,000. It must also be remembered that in some instances, perhaps in many, the same subscriber has two telephones, one at his office and one at his home.

Contracts made under the New Rates.

From information received from its engineers the commission has ascertained that in the thirteen weeks during which the company has been ready to make contracts under the new rate schedules, to and including the week ending Dec. 31, 1910, there have been 69,516 inquiries made to the company's officials concerning the new rates. Of these 69,516 inquiries, 52,073 have expressed themselves as favoring the new rates, and 10,233 subscribers were noncommittal.

Already over 34,215 Subscribers have changed.

The fact that during these thirteen weeks 34,215 old subscribers have taken contracts under the new rates would seem a pretty sure indication that the rates and service were favorable to the vast majority of the company's subscribers.

Since the new rates have gone into effect an average of nearly 500 of the old subscribers have changed and taken contracts under the new rates every working day.

Over 6,751 New Subscribers to the New Rates.

That there is a large number of people in this community who desire the new rates and service, and to whom the new rates are more favorable than the old, seems to be conclusively shown by the fact that since the new rates have been offered by the company contracts have been written with 6,751 new subscribers. The total number of contracts that have already been made under the new rates is 40,966. This constitutes 54 per cent. of the total number of contracts that were outstanding under the old rates on July 31, 1910. In other words, there have been written 40,966 contracts under the new rates, which makes very nearly as many contracts now existing under the new rates as are in existence under the old rates.

Considering the diversity of demands of the various subscribers and the difficulty that every subscriber has in ascertaining what his actual needs are, and which of the new rates is the most favorable one for him to subscribe to, the showing certainly seems to indicate that the schedule of rates recommended by the commission is going to prove desirable for the community as a whole as well as for the existing telephone subscribers.

Changes affect All Classes of Service and All Communities.

While it was, of course, manifest that it was greatly to the advantage of almost all the company's subscribers who desired the measured service to take the new rates, the number who had unlimited service under the old rates who have taken the new is also very large. The changes indicate that the new

measured rates, particularly the new two-party measured rate, including as it does a 5-cent toll call for a distance of 8 miles without additional charge until the subscriber has secured the number of calls to which he is entitled under the contract at 5 cents, will be a great benefit to the community.

In many instances subscribers have taken new contracts for improved service which will be not only a benefit to them but to the service as a whole. In other words, the community desired two-party lines instead of four, single-party lines instead of two, were contented with a limited area because it satisfied all of their needs, but could not afford to pay the old rates even to secure such improved service, whereas they can afford to subscribe under the new rates.

When these rates are fully in effect we believe it will be found that the service is vastly benefited, and that the annoyance caused by the multi-party line, with the so frequent answer "Line is busy," will be largely done away with.

Actual Trial will determine Future Rates.

It goes without saying that it will be the duty of the commission to continue its study of rates and service. If the schedule in any respect is found to be incomplete or unfair it can and must be modified from time to time as experience shows to be justifiable. If it is found to be unjust to any particular class of subscribers it must be so modified as to accomplish equity. If it is found that, because of the large number of new subscribers who, we believe, will come in under the new rates, the revenue of the company is in excess of its fair requirements the rates will have to be further reduced. In other words, the commission recommended merely a schedule of rates to be adopted tentatively, which seemed to it the best schedule which it could recommend to meet the necessities of the community as fairly as possible with justice to the company. Experience alone can show whether the commission was right or wrong, but meantime both the commission and the company will continue the study of the rates, and such modifications will be made from time to time as the results of further study and experience may warrant.

Reduction in Local Toll Rates.

It will be remembered that one of the first acts of the commission, acting upon the recommendation of its engineers, was to recommend that the 10-cent toll rate which was charged to various suburban exchanges within 5 miles of the seven metropolitan exchanges should be reduced to 5 cents per call. This recommendation has been in effect since April 15, 1908, and has given satisfactory results.

This 5-cent toll rate covered substantially one-half of all the telephones that were within the suburban district. While it is true that the adoption of this rate caused in the first instance a very large reduction in revenue, because the rate was cut in halves, it is also true that there has been a constantly increasing number of calls under the 5-cent rate.

It seems probable that the revenue collected under the 5-cent rate will, in about a year, be as large as the revenue that would have been collected under the 10-cent rate had it remained in force.

It must be remembered, of course, that with the increasing population and increasing number of telephones the amount collected under the 10-cent rate was constantly increasing month by month, and would have continued to do so even had the rate not been reduced, but it seems probable that by 1912 the company will be receiving as much revenue under the 5-cent rate in this area as it would have collected under the 10-cent rate as its normal rate of increase.

Extension of 5-cent Toll Rate.

The commission recommended the extension of the 5-cent toll rate from a 5-mile radius to an 8-mile radius because it believed that this extension could fairly be made by the company. This brings within the 5-cent toll rate substantially 75 per cent. of all the telephones in the metropolitan and suburban district.

There seemed to be a legitimate requirement for this particular rate because the suburbs have so much occasion to do business with the metropolitan district on account of the intimate correlation between the suburbs and the city, and *vice versa*.

In connection with this recommendation the commission also recommended that in the towns lying along the border of the suburban district there should be a corresponding reduction in toll rates from 10 to 5 cents in all contiguous exchanges that were within 5 miles of each other.

Further Studies contemplated.

The commission is continuing its studies of telephone rates in the Commonwealth. It has been trying to ascertain, as far as possible, the relation between toll and local rates and some fair basis of charge for toll rates. This is an extremely intricate problem and one that will require a large amount of study and a long period of time for its solution, because toll rates and local rates are so intimately involved, and in many cases the same plant is used sometimes for toll, sometimes for local service.

The rates charged in other parts of the State have also been receiving study, and the commission thinks that in a short time there may be some changes which can be made in the rates and service throughout the Commonwealth which will be of advantage to the telephone subscribers in those localities, and which will tend to still further standardize the rates and service throughout the Commonwealth and bring them more nearly in accord with the rates recommended by the commission and adopted by the company for the metropolitan and suburban district.

New Schedule has already resulted in Improvements for the Rest of the State.

The company adopted the recommendation of the commission and agreed to establish a 5-cent toll rate between exchanges in the suburban district and contiguous exchanges within 5 miles but outside the district. Already the benefit of the new rates, as recommended, is being secured for the public.

The necessary and logical sequence of the establishment of this particular rate has already become apparent. The company itself recognized the inconsistency of a 5-cent rate for distances of 5 miles or less between suburban exchanges and those out-

side, and a 10-cent rate for similar distances between other exchanges throughout the State.

Consequently, it has notified the commission, by letter dated Dec. 9, 1910, that if the commission had no objection the company proposed, on Jan. 1, 1911, to put into effect a 5-cent toll rate throughout the State between toll points that were 5 miles or less apart. The company stated in its letter that it realized that many of these rates were unremunerative even under the existing 10-cent rate, but that it believed the adoption of the 5-cent rate would tend to uniformity between the different communities and subscribers.

The commission stated that it had no objection to such a rate being put into effect by the company, as it did not see how it would interfere with its duty in equalizing other rates in the future.

There are some 300 toll points that receive the benefit of this new rate, and the commission is gratified that the result of its studies in the metropolitan and suburban district has so soon become of benefit to telephone users in other parts of the State.

Rates of Service in Other Parts of the State.

The commission has from time to time had many other rates brought in question, and has delayed the study of particular rates until it had completed its study in the metropolitan and suburban district because it felt that possibly the study made here would enable it to more readily meet many problems that might be presented elsewhere.

A number of boards of trade throughout the Commonwealth have asked the commission to consider the question of a special night toll rate. At the request of the commission they have delayed presenting their case until the commission had completed its study of telephone rates and traffic in this district.

It is now the intention of the commission to take this matter up and give a hearing at an early date, as well as to consider the matter of uniformity of rates in other places throughout the Commonwealth in the light of the study which it has already made.

Changes in Accounting recommended.

Besides employing as engineers the firm of D. C. & William B. Jackson, the commission has also employed the firm of Stone & Webster, and their expert, Mr. A. R. Patterson, to make a study of the accounting system of the telephone company in co-operation with studies made by Professor Jackson.

From time to time Mr. Patterson has recommended to the commission that the company make certain changes in its accounting system, and, so far, his recommendations have been adopted by the company. This has involved certain changes in the method of keeping accounts so as to make them clearer, and also that it might be possible in the future for the commission and its experts to determine more nearly the actual cost of service in the various districts, and what would be a proper allowance for maintenance, repairs, obsolescence and depreciation, all of which was necessary for an intelligent study and determination of what would be just and equitable rates.

He also recommended to the commission, and the commission suggested to the company, that it might be wise to spread the inventory and appraisal value on the books of the company as representing its plant. This suggestion, also, the company adopted.

After the accounts have been kept under the new methods for a sufficient length of time, the commission believes that it will be possible for its experts and accountants to more nearly determine the amount that it is necessary to set aside for various items of repair, maintenance, depreciation and obsolescence, as well as the actual operating costs involved in the various classes of service, and that it may thereby secure accurate data from time to time on which to base future studies as to further readjustments of telephone rates. The commission and its experts are still engaged upon a further study of these intricate problems.

HAROLD PARKER,
WM. D. SOHIER,
F. D. KEMP,

Massachusetts Highway Commission.

APPENDIX A.

ABSTRACTS OF ANNUAL RETURNS FOR THE YEAR ENDING JUNE 30, 1910, OF COMPANIES ENGAGED IN THE TRANSMISSION OF INTELLIGENCE BY ELECTRICITY IN MASSACHUSETTS.

LARGE TELEPHONE COMPANIES.

AMERICAN TELEPHONE AND TELEGRAPH COMPANY

Location of principal business office: 15 Dey Street, New York, N. Y.

Date of organization: March, 1885.

Date of incorporation: March, 1885.

State in which incorporated: New York.

Date of annual meeting: last Tuesday of March.

Date when company began to give service: 1885.

GENERAL OFFICERS AND OFFICIAL TITLES.

Theodore N. Vail,	.	.	.	.	.	.	<i>President.</i>
Edward J. Hall,	.	.	.	.	.	.	<i>Vice-President.</i>
Harry B. Thayer,	.	.	.	.	.	.	<i>Vice-President.</i>
Bernard E. Sunny,	.	.	.	.	.	.	<i>Vice-President.</i>
Union N. Bethell,	.	.	.	.	.	.	<i>Vice-President.</i>
William R. Driver,	.	.	.	.	.	.	<i>Vice-President.</i>
Charles P. Ware,	.	.	.	.	.	.	<i>Vice-President.</i>
Charles E. Hubbard,	.	.	.	.	.	.	<i>Secretary.</i>
William R. Driver,	.	.	.	.	.	.	<i>Treasurer.</i>
Charles G. Du Bois,	.	.	.	.	.	.	<i>Comptroller.</i>

DIRECTORS AND RESIDENCES.

Charles W. Amory,	.	.	.	.	.	.	Boston, Mass.
George F. Baker,	.	.	.	.	.	.	New York, N. Y.
Thomas B. Bailey,	.	.	.	.	.	.	Boston, Mass.
Francis Blake,	.	.	.	.	.	.	Weston, Mass.
Harry H. Brigham,	.	.	.	.	.	.	New York, N. Y.
Alexander Cochrane,	.	.	.	.	.	.	Boston, Mass.
T. Jefferson Coolidge, Jr.,	.	.	.	.	.	.	Manchester, Mass.
W. Murray Crane,	.	.	.	.	.	.	Dalton, Mass.
Henry P. Davison,	.	.	.	.	.	.	New York, N. Y.
Rudolph Ellis,	.	.	.	.	.	.	Bryn Mawr, Pa.
George L. Green,	.	.	.	.	.	.	Ridgewood, N. J.

Henry L. Higginson,	Boston, Mass.
Robert Winsor,	Weston, Mass.
Henry S. Howe,	Brookline, Mass.
Charles E. Hubbard,	Boston, Mass.
John J. Mitchell,	Chicago, Ill.
George W. Pierce,	Boston, Mass.
William L. Putnam,	Manchester, Mass.
Thomas Sanders,	E. Brookfield, Vt.
Sylvanus L. Schoonmaker,	New York, N. Y.
Eugene V. R. Thayer,	Lancaster, Mass.
Theodore N. Vail,	Lyndon, Vt.
Frank E. Warner,	Boston, Mass.
John I. Waterbury,	Morristown, N. J.
Moses Williams,	Brookline, Mass.

CAPITAL.

Capital authorized by charter,	\$500,000,000 00
Capital authorized by vote of company,	259,846,200 00
Capital paid in, 2,598,462 shares; par value, \$100,	259,846,200 00

Whole number of stockholders,	38,840
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DEBTS.

Bonds or notes issued, viz.:—

DATE.	When due.	How secured.	Rate of Interest (Per Cent.).	Amount.
July 1, 1899,	July 1, 1929,	Stocks and bonds deposited as collateral,	4	\$53,000,000 00
March 1, 1906,	March 1, 1936,	Not secured,	4	43,616,000 00
Jan. 1, 1907,	Jan. 1, 1910,	Not secured,	5	64,000 00
May 1, 1904,	May 1, 1907,	Not secured,	5	5,000 00
Sept. 15, 1909,	Sept. 15, 1911,	—	4½	2,000,000 00
Sept. 15, 1909,	Sept. 15, 1912,	—	4½	2,000,000 00
Sept. 15, 1909,	Sept. 15, 1913,	—	4½	2,000,000 00
Sept. 15, 1909,	Sept. 15, 1914,	—	4½	2,000,000 00
Sept. 15, 1909,	Sept. 15, 1915,	—	4½	2,000,000 00
Sept. 15, 1909,	May 1, 1912,	—	4	10,500,000 00
Feb. 23, 1910,	Demand,	—	5	5,750,000 00
Total amount of bonds and notes,				\$122,935,000 00
Capital paid in,				259,846,200 00
Total liability for capital and loans,				\$382,781,200 00

CONDENSED STATEMENT OF OPERATING FOR THE YEAR (WHOLE SYSTEM).

	Items.	Totals.
Gross earnings from operation, ¹		\$16,503,890 95
General expense,	\$2,686,756 75	
Operating expense,	2,303,440 64	
Current repair, reconstruction and deferred maintenance,	3,222,397 57	
Other expenses,	234,136 78	
Total expenses,		8,446,731 74
Net revenue from operation,		\$8,057,159 21
Miscellaneous income: —		
Real estate revenue,	\$96,734 10	
Income from securities,	23,151,895 76	
Other miscellaneous income,	768,760 74	
Total miscellaneous income,		24,017,390 60
Total income above expenses,		\$32,074,549 81
Fixed charges: —		
Interest on funded debt,	\$4,228,032 66	
Interest on floating debt,	1,561,077 06	
Total fixed charges,		5,789,109 72
Net divisible income,		26,285,440 09
Dividends declared, 8 per cent. on various amounts,		19,757,337 06
Surplus for year ending June 30, 1910,		\$6,528,103 03

EARNINGS (WHOLE SYSTEM).

Exchange service: —		
Subscribers' rentals,		\$10,062 93
Toll service: —		
Toll service,	\$7,476,873 47	
Leased line rentals,	2,550,542 48	
Miscellaneous toll earnings,	5,716 10	
Total toll service,		10,033,132 05
Conduit, pole and roof rent,		195,383 80
Licensee companies,		6,265,312 17
Total gross earnings from operation,		\$16,503,890 95
Miscellaneous income: —		
Real estate revenue,	\$96,734 10	
Dividends on stocks of other companies,	18,027,624 23	
Interest on bonds and notes of other companies,	5,124,271 53	
Other miscellaneous income,	768,760 74	
Total miscellaneous income,		24,017,390 60
Total gross earnings and income,		\$40,521,281 55

¹ Gross earnings from operation in Massachusetts: —

Gross earnings, \$15,479 37

EXPENSES (WHOLE SYSTEM).

	Items.	Totals.
General expense,		\$2,686,756 75
Operating expense,		2,303,440 64
Maintenance expense,		3,222,397 57
Conduit, pole and other space,		133,666 16
Use of other plant,		100,470 62
Total of all expenses,		<u>\$8,446,731 74</u>

GENERAL BALANCE SHEET.

Assets.

Exchange construction,		\$74,486 87
Toll construction :—		
Toll lines,	\$40,995,457 18	
Equipment,	1,436,416 79	
Total toll construction and equipment,		<u>42,431,873 97</u>
Construction in process,		569,101 30
Other real estate required for operation,		2,560,100 96
Office furniture and fixtures,		178,575 43
Tools and teams,		116,441 21
Total plant account,		<u>\$45,930,579 74</u>
Telephones,		11,110,137 49
Securities of other companies,		316,409,145 60
Current assets:—		
Cash on hand,	\$14,865,369 44	
Notes and accounts receivable,	86,358,883 68	
Supplies on hand,	892,624 72	
Prepaid expenses,	70,633 67	
Total current assets,		<u>102,187,511 51</u>
Total debits,		<u>\$475,637,374 34</u>

Liabilities.

Capital stock, common,		\$259,846,200 00
Bonded debt,		96,616,000 00
Current liabilities:—		
Loans and notes payable,	\$26,319,000 00	
Audited vouchers and accounts,	330,847 86	
Dividends not called for (including dividend payable July 15, \$5,196,924.00),	5,202,366 00	
Matured interest coupons unpaid (including due July 1, 1910, \$1,060,000),	1,641,546 67	
Unearned revenue,	33,592 81	
Total current liabilities,		<u>33,527,353 34</u>
Accrued liabilities:—		
Interest accrued but not due,	\$202,250 00	
Taxes accrued but not due,	151,677 31	
Miscellaneous accrued liabilities,	330,704 16	
Total accrued liabilities,		<u>684,631 47</u>
Amount carried forward,		<u>\$390,674,184 81</u>

	Totals.
<i>Amount brought forward,</i>	\$390,674,184 81
Sinking and other special funds: —	
Depreciation reserve,	34,181,498 17
Total liabilities,	\$424,855,682 98
Balance, surplus,	50,781,691 36
Total credits,	\$475,637,374 34

PROFIT AND LOSS ACCOUNT.

	Dr.	Cr.
Balance from previous year,		\$37,127,670 11
Gross earnings from operation,		16,503,890 95
Miscellaneous income,		768,760 74
Real estate revenue,		96,734 10
Income from securities,		23,151,895 76
Dividends received in first quarter, 1909, earned in 1908,		3,129,139 15
Bond interest received in first quarter, 1909, earned in 1908,		70,420 00
Miscellaneous items of earnings received in this period but pertaining to previous years,		157,550 00
Premium on capital stock issued on conversion of bonds,		7,441,828 95
Operating expenses, including charges on account of reconstruction and deferred repairs,	\$8,446,731 74	
Interest on funded debt,	4,228,032 66	
Interest on floating debt,	1,561,077 06	
For depreciation,	3,000,000 00	
Dividends declared, 8 per cent.,	19,757,337 06	
Miscellaneous items of expense paid in this period but pertaining to previous years,	673,019 88	
Balance, surplus,	50,781,691 36	
	\$88,447,889 76	\$88,447,889 76

PROPERTY ACCOUNTS (ADDITIONS AND DEDUCTIONS DURING THE YEAR).

<i>Additions.</i>	Items.	Totals.
Exchange construction,		\$1,289 27
Equipment,		616,600 00
Toll construction,		1,138,982 73
Additions to other real estate required for operation,		16,990 49
Tools and vehicles (net),		40,710 56
Total additions,		\$1,814,573 05
<i>Deductions.</i>		
Construction abandoned,	\$160,818 79	
Office furniture and fixtures,	47,370 36	
Construction in process,	393,788 29	
Total deductions,		601,977 44
Net additions to property account for the year,		\$1,212,595 61

**STATISTICAL INFORMATION (OVERHEAD, UNDERGROUND AND SUBMARINE
SYSTEMS IN MASSACHUSETTS).**

Underground system:—	
Conduit, feet,	109,148
Duct, feet,	698,807
Cable, feet,	218,097
Wire, feet,	36,295,010
Submarine system:—	
Cable, feet,	3,747
Wire, feet,	89,589
Overhead system:—	
Pole line, miles,	513.20
Iron wire, miles,	204.05
Copper wire, miles,	15,744.81

GENERAL REMARKS AND EXPLANATIONS.

"No exchange service is given by this company in the State of Massachusetts; its business in said State consists of the furnishing of lines and facilities to enable the transmission of intelligence, through the exchanges of other telephone companies, between the subscribers and patrons of one of such companies and those of another. The traffic carried on over its lines is almost entirely interstate."

AUTOMATIC TELEPHONE COMPANY OF NEW BEDFORD.

Location of principal business office: 43 William Street, New Bedford, Mass.

Date of organization: Nov. 12, 1898.

Date of incorporation: Nov. 28, 1898.

State in which incorporated: Massachusetts.

Date of annual meeting: second Wednesday in April.

Date when company began to give service: Dec. 1, 1900.

Service is given by this company over its own lines in Acushnet, Dartmouth, and New Bedford, Mass.

GENERAL OFFICERS AND OFFICIAL TITLES.

Francis T. Akin,	<i>President.</i>
Lot B. Bates,	<i>Vice-President.</i>
Frederic Taber,	<i>Treasurer.</i>
Clarence H. James,	<i>Assistant Treasurer.</i>
Frederic H. Taber,	<i>Clerk.</i>
William R. Binkley,	<i>Superintendent.</i>

DIRECTORS AND RESIDENCES.

Francis T. Akin,	New Bedford, Mass.
Lot B. Bates,	New Bedford, Mass.
Frederic Taber,	New Bedford, Mass.
Frederic H. Taber,	New Bedford, Mass.
Edward D. Sherman,	New Bedford, Mass.
Frederick W. Besse,	New Bedford, Mass.
Thomas Hersom,	New Bedford, Mass.
William C. Hawes,	New Bedford, Mass.

CAPITAL.

Capital authorized by charter,	\$100,000 00
Capital authorized by vote of company,	200,000 00
Capital paid in, 4,000 shares; par value, \$50,	200,000 00

Whole number of stockholders,	180
Number of stockholders resident in Massachusetts,	173
Amount of stock held in Massachusetts (shares),	3,792

DEBTS.

Bonds or notes issued, viz.: —

DATE.	When due.	How secured.	Rate of Interest (Per Cent.).	Amount.
Oct. 9 1909.	Oct. 9, 1910.	Note,	5	\$6,000 00
Jan. 6, 1910.	Jan. 6, 1911.	Note,	5	10,000 00
Jan. 12, 1910.	July 12, 1910.	Note,	5	13,000 00
Feb. 7, 1910	Aug. 7, 1910.	Note,	5	9,000 00
Mar. 24, 1910.	Sept. 24, 1910.	Note,	5	9,000 00
Total amount of notes,				\$47,000 00
Capital paid in,				200,000 00
Total liability for capital and loans,				\$247,000 00

CONDENSED STATEMENT OF OPERATING FOR THE YEAR.

	Items.	Totals.
Gross earnings from operation,	\$37,775 74	
Less rebates and discounts,	1,620 61	
Revenue from operation,		\$36,155 13
General expense,	\$6,296 53	
Operating expense,	5,400 38	
Current repair,	5,595 30	
Other expenses,	267 19	
Total expenses,		17,559 40
Net revenue from operation,		\$18,595 73
Real estate revenue,		745 58
Total income above expenses,		\$19,341 31
Fixed charges: —		
Interest on floating debt,		1,616 38
Net divisible income,		\$17,724 93
Dividends: —		
Dividends declared on preferred stock, 6%,	\$6,000 00	
Dividends declared on common stock, 7%,	7,000 00	
		13,000 00
Surplus for year ending June 30, 1910,		\$4,724 93

EARNINGS.

Gross earnings from operation :—

Exchange service:—	Items.	Totals.
Subscribers' rentals,	\$37,775 74
Less rebates and discounts,	1,620 61
Revenue from operation,	\$36,155 13
Miscellaneous income :—		
Real estate revenue,	745 58
Total gross earnings and income,	\$36,900 71

EXPENSES.

General expense:—

Salaries of officers,	\$1,200 00	
Salaries of others,	75 00	
Wages of clerks,	426 00	
Light and heat,	450 87	
Travelling,	28 00	
Postage, printing and stationery,	322 40	
Directory,	229 50	
Taxes,	2,473 65	
Legal,	58 44	
Insurance,	447 91	
Incidental,	584 76	
Total general expense,		\$6,296 53

Operating:—

Superintendence,	\$500 76	
Wages of operators,	390 00	
Wages of others,	962 00	
Light, heat and power,	423 32	
Advertising, canvassing and collecting,	2,713 93	
Incidental,	410 37	
Total operating expense,		5,400 38

Current repair:—

Exchange overhead lines,	\$3,088 38	
Exchange underground lines,	73 88	
Central office equipment,	1,032 24	
Subscribers' equipment,	1,166 59	
Incidental,	234 21	
Total maintenance expense,		5,595 30
Conduit, pole and roof rent,		5 18
Real estate expense,		259 11
Miscellaneous,		2 90
Total of all operating expenses,		\$17,559 40

GENERAL BALANCE SHEET.

Assets.

Exchange construction:—

Overhead lines,	\$81,969 38	
Underground lines,	64,521 65	
Central office equipment,	44,884 98	
Subscribers' station equipment,	49,108 63	
Total exchange construction and equipment,		\$240,484 64
Amount carried forward,		\$240,484 64

	Items.	Totals.
<i>Amount brought forward,</i>		\$240,484 64
Toll construction:—		
Overhead lines,		3,746 80
Real estate required for operation,		13,000 00
Total plant account,		\$257,231 44
Licenses,		20,000 00
Current assets:—		
Cash on hand,	\$195 95	
Notes and accounts receivable,	8,834 79	
Total current assets,		9,030 74
Total debits,		\$286,262 18
<i>Liabilities.</i>		
Capital stock, common,	\$100,000 00	
Capital stock, preferred,	100,000 00	
Total capital stock,		\$200,000 00
Current liabilities:—		
Loans and notes payable,	\$47,000 00	
Audited vouchers and accounts,	997 59	
Rentals due and unpaid,	6,456 02	
Total current liabilities,		54,453 61
Sinking and other special funds:—		
Depreciation account,		5,000 00
Total liabilities,		\$259,453 61
Balance, surplus,		26,808 57
Total credits,		\$286,262 18

	Dr.	Cr.
Balance from previous year,		\$22,806 16
Less item (see note on page 193),		722 52
		\$22,083 64
Gross earnings from operation,		37,775 74
Rent,		745 58
Operating expenses,	\$17,559 40	
Rebates and discounts,	1,620 61	
Interest on floating debt,	1,616 38	
Dividends declared on stock,	13,000 00	
Balance, surplus,	26,808 57	
	\$60,604 96	\$60,604 96

PROPERTY ACCOUNTS (ADDITIONS DURING THE YEAR).

	Items.	Totals.
Exchange construction:—		
Overhead lines,	\$11,259 41	
Underground lines,	526 19	
Central office equipment,	4,128 32	
Subscribers' station equipment,	7,601 48	
Total exchange construction and equipment,		\$23,515 40
Total additions to property account for the year,		\$23,515 40

STATISTICAL INFORMATION.

Number of subscribers,	1,663
Number of instruments,	1,795
Number of operators,	1
Number of pay stations,	5
Number of subscribers on party lines,	380
Number of subscribers on single lines,	1,283
Underground system: —	
Conduit, feet,	18,480
Duct, feet,	136,030
Cable, feet,	60,530
Wire, feet,	9,847,700
Overhead system: —	
Pole line, miles,	33
Iron wire, miles,	394
Copper wire, miles,	100

GENERAL REMARKS AND EXPLANATIONS.

NOTE.— In the return for the year ending June 30, 1909, this figure (\$722.52) was erroneously entered in the profit and loss account. It should not have appeared there, inasmuch as it was otherwise accounted for, and does not appear on the corporation ledger; hence the deduction to correct balance."

CAPE COD TELEPHONE COMPANY.

Location of principal business office: Hyannis, Mass.

Date of organization: Feb. 5, 1903.

Date of incorporation: Feb. 10, 1903.

State in which incorporated: Massachusetts.

Date of annual meeting: first week day in September.

Date when company began to give service: April 23, 1903.

Service is given by this company over its own lines in the town of Barnstable.

GENERAL OFFICERS AND OFFICIAL TITLES.

Frank Percy Goss,	<i>President.</i>
Alfred Willard Guyer,	<i>Vice-President.</i>
Arthur Gordon Guyer,	<i>Clerk and Treasurer.</i>

DIRECTORS AND RESIDENCES.

Frank Percy Goss,	Hyannis, Mass.
Alfred Willard Guyer,	Hanover, N. H.
Arthur Gordon Guyer,	Hyannis, Mass.

CAPITAL.

Capital authorized by charter,	\$1,000 00
Capital authorized by vote of company,	5,000 00
Capital paid in, 240 shares; par value, \$25,	6,000 00
Whole number of stockholders,	14
Number of stockholders resident in Massachusetts,	13
Amount of stock held in Massachusetts (shares),	239

DEBTS.

Bonds or notes issued, viz.:—

DATE.	When due.	How secured.	Rate of Interest (Per Cent.).	Amount.
Feb. 15, 1910.	Aug. 15, 1910.	Not secured,	5½	\$200 00
Jan. 7, 1910.	July 7, 1910.	Not secured,	6	200 00
June 28, 1910.	Dec. 28, 1910.	Not secured,	6	200 00
Total amount of notes,				\$800 00
Capital paid in,				6,000 00
Total liability for capital and loans,				\$6,800 00

CONDENSED STATEMENT OF OPERATING FOR THE YEAR.

	Items.	Totals.
Gross earnings from operation,		\$2,584 68
General expense,	\$771 20	
Operating expense,	558 99	
Current repair,	236 74	
Total expenses,		1,566 93
Net revenue from operation,		\$1,017 75
Fixed charges:—		
Interest on floating debt,		35 00
Surplus of net income above fixed charges,		\$982 75
Dividends declared, 6 per cent. on \$6,000,		360 00
Surplus for year ending June 30, 1910,		\$622 75

EARNINGS.

Exchange service,	\$2,584 68
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EXPENSES.

General expense:—	
Salaries of officers (Manager),	\$500 00
Rent, light and heat,	55 00
Travelling,	50 00
Postage, printing and stationery,	11 75
Directory,	28 00
Taxes,	106 33
Incidental,	20 12
Total general expense,	\$771 20
Operating:—	
Wages of operators,	558 99
Current repair:—	
Exchange overhead lines,	236 74
Total of all operating expenses,	\$1,566 93

GENERAL BALANCE SHEET.

Assets.

	Items.	Totals.
Exchange construction: —		
Underground lines,	\$5,000 00	
Central office equipment,	200 00	
Subscribers' station equipment,	1,600 00	
Total exchange construction and equipment, ————		\$6,800 00
Current assets: —		
Cash on hand,	\$157 36	
Supplies on hand,	100 00	
Total current assets,		257 36
Total debits,		\$7,057 36

Liabilities.

Capital stock, common,	\$6,000 00
Current liabilities: —	
Loans and notes payable,	600 00
Total liabilities,	\$6,600 00
Balance, surplus,	457 36
Total credits,	\$7,057 36

PROFIT AND LOSS ACCOUNT.

	Dr.	Cr.
Balance from previous year,		\$634 61
Gross earnings from operation,		2,584 88
Operating expenses,	\$1,566 93	
Interest on floating debt,	35 00	
For depreciation: —		
Overhead lines,	600 00	
Subscribers' station equipment,	200 00	
Dividends declared on stock,	360 00	
Balance, surplus,	457 36	
	\$3,219 29	\$3,219 29

STATISTICAL INFORMATION.

Number of subscribers,	220
Number of instruments,	224
Number of operators,	4
Number of subscribers on party lines,	218
Number of subscribers on single lines,	2
Overhead system: —	
Pole line, miles,	35
Iron wire, miles,	216

FALL RIVER AUTOMATIC TELEPHONE COMPANY.

Location of principal business office: 215 Bank Street, Fall River, Mass.

Date of organization: Dec. 7, 1899.

Date of incorporation: Dec. 8, 1899.

State in which incorporated: Massachusetts.

Date of annual meeting: second Monday of April.

Date when company began to give service: Oct. 1, 1901.

Service is given by this company over its own lines in the city of Fall River.

GENERAL OFFICERS AND OFFICIAL TITLES.

Edward B. Jennings, *President.*
 Bradford D. Davol, *Treasurer.*
 Clark Chase, Jr., *Assistant Treasurer and Manager.*
 Arthur A. Noel, *Superintendent.*

DIRECTORS AND RESIDENCES.

Edward B. Jennings, Fall River, Mass.
 Edmund W. Wakelee, Englewood, N. J.
 John T. Swift, Fall River, Mass.
 Joseph Watters, Fall River, Mass.
 Martin Feeney, Fall River, Mass.
 Bradford D. Davol, Fall River, Mass.
 Danforth H. Hathaway, Fall River, Mass.

CAPITAL.

Capital authorized by charter, \$135,000 00
 Capital authorized by vote of company, 135,000 00
 Capital paid in, 2,700 shares; par value, \$50, 135,000 00
 Whole number of stockholders, 68
 Number of stockholders resident in Massachusetts, 66
 Amount of stock held in Massachusetts (shares), 1,924

DEBTS.

Bonds or notes issued, viz.: —

DATE.	When due.	How secured.	Rate of Interest (Per Cent.).	Amount.
June 1, 1903,	June 1, 1923,	Mortgage on land, buildings, license, franchise and property.	5	\$65,000 00
Total amount of bonds and notes,				\$65,000 00
Capital paid in,				135,000 00
Total liability for capital and loans,				\$200,000 00

CONDENSED STATEMENT OF OPERATING FOR THE YEAR.

	Items.	Totals.
Gross earnings from operation,	\$27,376 86	
Less rebates and discounts,	349 88	
Revenue from operation,		\$27,026 98
General expense,	\$8,619 41	
Operating expense,	2,264 47	
Current repair,	9,262 90	
Total expenses,		20,146 78
Net revenue from operation,		\$6,880 20
Miscellaneous income : —		
Interest on bank deposit,		39 00
Total income above expenses,		\$6,919 20
Amount carried forward,		\$6,919 20

	Items.	Totals.
<i>Amount brought forward,</i>		\$6,919 20
Fixed charges: —		
Interest on funded debt,		3,250 00
Surplus of net income above fixed charges,		\$3,669 20
Dividends declared, 1 per cent. on \$135,000,		1,350 00
Surplus for year ending June 30, 1910,		\$2,319 20

EARNINGS.

Exchange service: —		
Subscribers' rentals,	\$26,470 03	
Pay station local tolls,	92 92	
Leased line rentals,	115 00	
Total exchange service,		\$26,677 95
Toll service,		698 91
Total gross earnings from operation,		\$27,376 86
Less rebates and discounts,		349 88
Revenue from operation,		\$27,026 98
Miscellaneous income: —		
Interest on bank deposits,		39 00
Total gross earnings and income,		\$27,065 98

EXPENSES.

General expense: —		
Salaries of officers,	\$2,541 11	
Salaries of others,	1,479 00	
Wages of clerks,	833 00	
Rent, light and heat,	282 89	
Travelling,	362 13	
Postage, printing and stationery,	359 29	
Directory,	273 81	
Taxes,	1,269 66	
Legal,	464 00	
Insurance,	447 02	
Incidental,	307 50	
Total general expense,		\$8,619 41
Operating: —		
Wages of operators,	\$1,267 97	
Wages of others,	761 01	
Rent, light and heat,	235 49	
Total operating expenses,		2,264 47
Current repair: —		
Exchange overhead lines,	\$4,945 51	
Exchange underground lines,	77 11	
Central office equipment,	106 07	
Subscribers' equipment,	3,777 84	
Toll overhead lines,	327 68	
Incidental,	28 69	
Total maintenance expense,		9,262 90
Total of all operating expenses,		\$20,146 78

GENERAL BALANCE SHEET.

Assets.

	Items.	Totals.
Exchange construction: —		
Overhead lines,	\$59,268 84	
Underground lines,	72,328 07	
Central office equipment,	25,000 00	
Subscribers' station equipment,	59,963 17	
Total exchange construction and equipment, ———		\$216,560 08
Toll construction: —		
Overhead lines,		3,746 80
Real estate required for operation,		11,166 83
Tools and teams,		280 00
Total plant account,		\$231,753 71
Contracts and licenses,		10,000 00
Current assets: —		
Cash on hand,	\$1,717 58	
Notes and accounts receivable,	3,389 89	
Unexpired insurance,	233 90	
Other current assets (suspense),	1,600 00	
Total current assets,		6,941 37
Total debits,		\$248,695 08

Liabilities.

Capital stock, common,		\$135,000 00
Bonded debt,		65,000 00
Current liabilities: —		
Audited vouchers and accounts,	\$2,474 50	
Salaries and wages unpaid,	146 95	
Total current liabilities,		2,621 45
Accrued liabilities: —		
Interest accrued but not due,	\$270 83	
Taxes accrued but not due,	934 89	
Total accrued liabilities,		1,205 72
Sinking and other special funds: —		
Reserve for depreciation,		19,805 63
Total liabilities,		\$223,632 80
Balance, surplus,		25,062 28
Total credits,		\$248,695 08

PROFIT AND LOSS ACCOUNT.

	Dr.	Cr.
Balance from previous year,		\$22,743 08
Gross earnings from operation,		27,376 86
Miscellaneous income,		39 00
Operating expenses,	\$20,146 78	
Rebates and discounts,	349 88	
Interest on funded debt,	3,250 00	
Dividends declared on stock,	1,350 00	
Balance, surplus,	25,062 28	
	\$50,158 94	\$50,158 94

PROPERTY ACCOUNTS (ADDITIONS AND DEDUCTIONS DURING THE YEAR).

<i>Additions.</i>		<i>Totals.</i>
Subscribers' station equipment,		\$685 65
Additions to other permanent property,		160 00
Total additions,		<hr/> \$845 65
 <i>Deductions.</i>		
Underground lines sold,		24 80
Net additions to property accounts for the year,		<hr/> \$820 85

STATISTICAL INFORMATION.

Number of subscribers,	1,134
Number of instruments,	1,257
Number of operators,	2
Number of pay stations,	10
Number of subscribers on party lines,	241
Number of subscribers on single lines,	893
Underground system:—	
Conduit, feet,	18,691.2
Duct, feet,	101,798.4
Cable, feet,	56,971.2
Wire, feet,	10,841,476.8
Overhead system:—	
Pole line, miles,	64.17
Iron wire, miles,	415.52
Copper wire, miles,	1,093.31

HEATH TELEPHONE COMPANY.

Location of principal business office: Shelburne Falls, Mass.

Date of organization: Feb. 14, 1898.

Date of incorporation: Feb. 14, 1898.

State in which incorporated: Massachusetts.

Date of annual meeting: first Monday after October 10.

Date when company began to give service: As an Association in 1895.

Service is given by this company over its own lines in the following towns:—

Ashfield,	Conway,	Monroe,
Buckland,	Hawley,	Rowe,
Charlemont,	Heath,	Shelburne.
Colrain,	Leyden,	

This company also gives service in the State of Vermont.

GENERAL OFFICERS AND OFFICIAL TITLES.

Walter E. Kinsman,	<i>President and General Manager.</i>
Fred W. Story,	<i>Vice-President.</i>
Herbert Newell,	<i>Clerk and Treasurer.</i>

DIRECTORS AND RESIDENCES.

Walter E. Kinsman,	Shelburne Falls, Mass.
Herbert Newell,	Shelburne Falls, Mass.
Fred W. Story,	Boston, Mass.
Jasper N. Keller,	Boston, Mass.
Carl T. Keller,	Boston, Mass.
Matt. B. Jones,	Boston, Mass.
Fred H. Smith,	Ashfield, Mass.
William A. Barber,	Leyden, Mass.
Alexander J. Patterson,	Conway, Mass.
Charles L. Donelson,	Colrain, Mass.
Charles S. Goodnow,	Whitingham, Vt.

CAPITAL.

Capital authorized by charter,	\$1,020 00
Capital authorized by vote of company,	96,000 00
Capital paid in, 3,072 shares; par value, \$30,	92,160 00
Whole number of stockholders,	342
Number of stockholders resident in Massachusetts,	304
Amount of stock held in Massachusetts (shares),	2,882
Amount of stock held by New England Telephone & Telegraph Company (shares),	1,196

CONDENSED STATEMENT OF OPERATING FOR THE YEAR (WHOLE SYSTEM).

	Items.	Totals.
Gross earnings from operation, ¹		\$26,636 01
Less rebates and discounts,		31 86
Revenue from operation,		\$26,604 15
General expense,	\$3,221 66	
Operating expense,	9,725 95	
Current repair,	3,491 40	
Reconstruction,	482 03	
Deferred maintenance,	2,639 03	
Instrument rentals,	284 99	
Other expenses,	245 56	
Total expenses,		20,090 62
Net revenue from operation,		\$6,513 53
Fixed charges:—		
Interest on floating debt,		92 76
Surplus of net income above fixed charges,		\$6,420 77
Sinking fund charges:—		
Deferred maintenance,		1,241 88
Surplus for year ending June 30, 1910,		\$5,178 89

¹ Gross earnings from operation in Massachusetts:—

Gross earnings,	\$20,431 92
Less rebates and discounts,	25 91
Revenue from operation,	\$20,406 01

EARNINGS (WHOLE SYSTEM).

	Items.	Totals.
Exchange service:—		
Subscribers' rentals,	\$19,590 91	
Pay station local tolls,	288 55	
Total exchange service,		\$19,879 46
Toll service,		6,756 55
Total gross earnings from operation,		\$26,636 01
Less rebates and discounts,		31 86
Total gross earnings and income,		\$26,604 15

EXPENSES (WHOLE SYSTEM).

General expense:—		
Salaries of officers,	\$1,599 98	
Rent, light and heat,	72 66	
Travelling,	125 35	
Postage, printing and stationery,	90 18	
Directory,	8 60	
Taxes,	1,238 34	
Legal,	22 95	
Damages and compensation,	61 60	
Incidental,	2 00	
Total general expense,		\$3,221 66
Operating:—		
Superintendence,	\$1,200 00	
Wages of operators,	6,407 47	
Wages of others,	828 70	
Rent, light and heat,	512 48	
Postage, printing and stationery,	677 77	
Advertising and canvassing,	14 00	
Incidental,	85 53	
Total operating expense,		9,725 95
Current repair:—		
Exchange overhead lines,	\$1,667 75	
Central office equipment,	289 25	
Subscribers' equipment,	1,534 40	
Total maintenance expense,		3,491 40
Instrument rentals:—		
Exchange,		284 99
Conduit, pole and roof rent,		245 56
Total expenses, not including charges for reconstruction and deferred repairs,		\$16,969 56
Reconstruction items charged to expense:—		
Exchange overhead lines,	\$334 45	
Central office equipment,	78 13	
Subscribers' office equipment,	69 45	
Total of reconstruction items charged to expense,		482 03
Amount carried forward,		\$17,451 59

	Items.	Totals.
<i>Amount brought forward,</i>		\$17,451 59
Deferred maintenance items charged to expense : —		
Exchange overhead lines,	\$1,962 74	
Central office equipment,	302 95	
Subscribers' station equipment,	373 34	
	<hr/>	
Total of deferred maintenance items charged to expense,		2,639 03
		<hr/>
Total of all operating expenses,		\$20,090 62

GENERAL BALANCE SHEET.

<i>Assets.</i>		
Exchange construction,		\$96,257 14
Office furniture and fixtures,		436 87
Tools and teams,		95 20
Repair shop,		82 16
		<hr/>
Total plant account,		\$96,871 37
Current assets: —		
Cash on hand,	\$3,112 31	
Notes and accounts receivable,	4,018 54	
Supplies on hand,	1,533 70	
Heath telephone stock,	480 00	
Total current assets,	<hr/>	9,144 55
		<hr/>
Total debits,		\$106,015 92
<i>Liabilities.</i>		
Capital stock, common,		\$92,160 00
Current liabilities: —		
Loans and notes payable,	\$2,000 00	
Audited vouchers and accounts,	219 61	
Salaries and wages unpaid,	271 80	
Total current liabilities,	<hr/>	2,491 41
Sinking and other special funds : —		
Maintenance reserve,		6,185 62
		<hr/>
Total liabilities,		\$100,837 03
Balance, surplus,		5,178 89
		<hr/>
Total credits,		\$106,015 92

PROFIT AND LOSS ACCOUNT.

	Dr.	Cr.
Balance from previous year,		\$4,980 65
Gross earnings from operation,		26,636 01
Operating expenses, including charges on account		
of reconstruction and deferred repairs,	\$20,090 62	
Rebates and discounts,	31 86	
Interest on floating debt,	92 76	
For depreciation on tools and teams,	36 91	
Sinking and other special funds : —		
Maintenance reserve,	6,185 62	
Balance, surplus,	5,178 89	
	<hr/>	
	\$31,616 66	\$31,616 66

PROPERTY ACCOUNTS (ADDITIONS AND DEDUCTIONS DURING THE YEAR).

Additions.

Exchange construction: —	Items.	Totals.
Right of way,	\$76 51	
Overhead lines,	2,684 93	
Central office equipment,	718 99	
Subscribers' station equipment,	696 83	
Total exchange construction and equipment, —————		\$4,177 26
Office furniture and repair shop,		410 83
Total additions,		\$4,588 09

Deductions.

Charged off from tools and teams,	192 52
Net additions to property account for the year,	\$4,395 57

STATISTICAL INFORMATION.

	In Massachusetts.	Outside Massachusetts.	Whole System.
Number of subscribers,	919	279	1,198
Number of instruments,	985	302	1,287
Number of operators,	16	6	22
Number of pay stations,	29	11	40
Number of subscribers on party lines,	911	274	1,185
Number of subscribers on single lines,	8	5	13
Overhead system: —			
Pole line, miles,	283.50	115.25	398.75
Iron wire, miles,	1,180	578	1,758
Copper wire, miles,	57	5.50	62.50

GENERAL REMARKS AND EXPLANATIONS.

1. "During the year our separate exchange at Rowe, Mass., has been consolidated with our Charlemonst exchange."

2. "While separation of toll earnings between our Vermont and Massachusetts territory has been accurately made, the segregation of these earnings between the several exchanges within each district has been carefully estimated and is believed to be substantially correct."

MASSACHUSETTS TELEPHONE AND TELEGRAPH COMPANY.

Location of principal business office: 185 Franklin Street, Boston, Mass.

Date of organization: about Nov. 15, 1898.

Date of incorporation: about Nov. 15, 1898.

State in which incorporated: Massachusetts.

Date of annual meeting: first Monday in November.

Date when company began to give service: 1899.

Service is given by this company over its own lines in Boston, Stoughton and Taunton.

GENERAL OFFICERS AND OFFICIAL TITLES.

A. Norton Taylor,	.	.	.	.	.	<i>President.</i>
William Shirden,	.	.	.	.	.	<i>Secretary and Treasurer.</i>

DIRECTORS AND RESIDENCES.

A. Norton Taylor,	.	.	.	.	.	Newark, N. J.
Fred Jones,	.	.	.	.	.	Jersey City, N. J.
William Shirden,	.	.	.	.	.	New York, N. Y.
Joseph Q. Taylor,	.	.	.	.	.	Taunton, Mass.
Dudley G. Browning,	.	.	.	.	.	Newark, N. J.

CAPITAL.

Capital authorized by charter,	.	.	.	.	.	\$10,000 00
Capital authorized by vote of company,	.	.	.	.	.	10,000 00
Capital paid in, 100 shares; par value, \$100,	.	.	.	.	.	10,000 00

Whole number of stockholders,	.	.	.	.	.	6
Number of stockholders resident in Massachusetts,	.	.	.	.	.	1
Amount of stock held in Massachusetts (shares),	.	.	.	.	.	1
Amount of stock held by the parent telephone company (shares),	.	.	.	.	.	80

DEBTS.

Bonds or notes issued, viz.:—

DATE.	When due.	How secured.	Rate of Interest (Per Cent.).	Amount.
May 4, 1908,	On demand,	Bonds (when issued),	5	\$3,430 00
June 6, 1908,	On demand,	Bonds (when issued),	5	1,750 00
July 8, 1908,	On demand,	Bonds (when issued),	5	1,385 00
Aug. 4, 1908,	On demand,	Bonds (when issued),	5	1,402 00
Sept. 7, 1908,	On demand,	Bonds (when issued),	5	1,675 00
Oct. 6, 1908,	On demand,	Bonds (when issued),	5	1,638 00
Nov. 3, 1908,	On demand,	Bonds (when issued),	5	4,500 00
Dec. 10, 1908,	On demand,	Bonds (when issued),	5	1,337 79
Jan. 3, 1907,	On demand,	Bonds (when issued),	5	4,600 00
Feb. 6, 1907,	On demand,	Bonds (when issued),	5	2,100 00
March 7, 1907,	On demand,	Bonds (when issued),	5	1,600 00
April 4, 1907,	On demand,	Bonds (when issued),	5	1,500 00
May 8, 1907,	On demand,	Bonds (when issued),	5	1,500 00
June 5, 1907,	On demand,	Bonds (when issued),	5	1,800 00
July 6, 1907,	On demand,	Bonds (when issued),	5	1,500 00
Aug. 8, 1907,	On demand,	Bonds (when issued),	5	1,600 00
Sept. 4, 1907,	On demand,	Bonds (when issued),	5	1,600 00
Oct. 5, 1907,	On demand,	Bonds (when issued),	5	5,000 00
Nov. 4, 1907,	On demand,	Bonds (when issued),	5	1,600 00
Dec. 18, 1907,	On demand,	Bonds (when issued),	5	1,500 00
Jan. 10, 1908,	On demand,	Bonds (when issued),	5	3,500 00
Feb. 8, 1908,	On demand,	Bonds (when issued),	5	1,600 00
March 4, 1908,	On demand,	Bonds (when issued),	5	1,600 00
April 4, 1908,	On demand,	Bonds (when issued),	5	1,600 00
May 7, 1908,	On demand,	Bonds (when issued),	5	1,500 00
June 1, 1908,	On demand,	Bonds (when issued),	5	1,800 00
July 7, 1908,	On demand,	Bonds (when issued),	5	1,600 00
Aug. 7, 1908,	On demand,	Bonds (when issued),	5	1,800 00
Sept. 12, 1908,	On demand,	Bonds (when issued),	5	1,600 00
Oct. 28, 1908,	On demand,	Bonds (when issued),	5	3,500 00
Oct. 10, 1908,	On demand,	Bonds (when issued),	5	1,600 00
Nov. 7, 1908,	On demand,	Bonds (when issued),	5	1,600 00
Dec. 5, 1908,	On demand,	Bonds (when issued),	5	1,600 00
Jan. 6, 1909,	On demand,	Bonds (when issued),	5	1,600 00
Feb. 9, 1909,	On demand,	Bonds (when issued),	5	1,600 00
March 1, 1909,	On demand,	Bonds (when issued),	5	1,600 00
April 1, 1909,	On demand,	Bonds (when issued),	5	1,600 00
May 1, 1909,	On demand,	Bonds (when issued),	5	1,600 00

DATE.	When due.	How secured.	Rate of Interest (Per Cent.).	Amount.
June 1, 1909,	On demand,	Bonds (when issued),	5	\$1,600 00
July 1, 1909,	On demand,	Bonds (when issued),	5	1,600 00
Aug. 1, 1909,	On demand,	Bonds (when issued),	5	1,600 00
Sept. 1, 1909,	On demand,	Bonds (when issued),	5	1,600 00
Oct. 1, 1909,	On demand,	Bonds (when issued),	5	1,600 00
Nov. 1, 1909,	On demand,	Bonds (when issued),	5	1,600 00
Dec. 1, 1909,	On demand,	Bonds (when issued),	5	1,600 00
Jan. 1, 1910,	On demand,	Bonds (when issued),	5	1,600 00
Feb. 1, 1910,	On demand,	Bonds (when issued),	5	1,600 00
March 1, 1910,	On demand,	Bonds (when issued),	5	1,600 00
Apr. 1, 1910,	On demand,	Bonds (when issued),	5	1,600 00
May 1, 1910,	On demand,	Bonds (when issued),	5	1,600 00
June 1, 1910,	On demand,	Bonds (when issued),	5	1,600 00
Total amount of bonds and notes,				\$96,117 79
Capital paid in,				10,000 00
Total liability for capital and loans,				\$106,117 79

CONDENSED STATEMENT OF OPERATING FOR THE YEAR.

	Items.	Totals.
Gross earnings from operation,		\$4,633 67
General expense,	\$6,402 79	
Operating expense,	6,652 84	
Current repair,	489 40	
Total expenses,		13,545 03
Net deficit from operation,		\$8,911 36
Real estate revenue,		1,650 30
Deficit for year ending June 30, 1910,		\$7,261 06

EARNINGS.

Gross earnings from operation: —	
Subscribers' rentals,	\$4,333 67
Conduit, pole and roof rent,	300 00
Revenue from operation,	\$4,633 67
Miscellaneous income: —	
Real estate revenue,	1,650 30
Total gross earnings and income,	\$6,283 97

EXPENSES.

General expense: —	
Salaries,	\$1,500 00
Wages of clerks,	416 00
Rent, light and heat,	1,500 00
Travelling,	110 00
Postage, printing and stationery,	75 00
Taxes,	195 79
Legal,	2,364 50
Insurance,	161 50
Incidental,	80 00
Total general expense,	\$6,402 79
Amount carried forward,	\$6,402 79

	Items.	Totals.
<i>Amount brought forward,</i>		\$6,402 79
Operating: —		
Superintendence,	\$1,799 84	
Wages of operators,	1,872 00	
Wages of others,	1,976 00	
Rent, light and heat,	900 00	
Postage, printing and stationery,	20 00	
Incidental,	85 00	
Total operating expenses,		6,652 84
Current repair: —		
Exchange overhead lines,	\$125 00	
Exchange underground lines,	100 00	
Central office equipment,	15 00	
Subscribers' equipment,	235 00	
Incidental,	14 40	
Total maintenance expense,		489 40
Total of all operating expenses,		\$13,545 03

GENERAL BALANCE SHEET.

Assets.

Exchange construction: —		
Overhead lines,	\$13,461 60	
Underground lines,	92,872 41	
Central office equipment,	14,613 00	
Subscribers' station equipment,	4,059 00	
Total exchange construction and equipment,		\$125,006 01
Toll construction: —		
Underground lines,		20,718 25
Office furniture and fixtures,		2,328 00
Tools and teams,		144 95
Total plant account,		\$148,197 21
Current assets: —		
Cash on hand,	\$2,839 93	
Notes and accounts receivable,	1,250 91	
Supplies on hand,	3,303 22	
Total current assets,		7,394 06
Total debits,		\$155,591 27

Liabilities.

Capital stock,	\$10,000 00
Current liabilities: —	
Loans and notes payable,	96,117 79
Total liabilities,	\$106,117 79
Balance, surplus,	49,473 48
Total credits,	\$155,591 27

PROFIT AND LOSS ACCOUNT.

	Dr.	Cr.
Balance from previous year,		\$56,734 54
Gross earnings from operation,		4,633 67
Real estate revenue (subrentals),		20,478 98
Operating expenses,	\$13,545 03	
Other items:—		
Operating and maintenance of leased building,	15,211 28	
Taxes and insurance on building,	3,617 40	
Balance, surplus,	49,473 48	
	<hr/>	<hr/>
	\$81,847 19	\$81,847 19

STATISTICAL INFORMATION.

Number of subscribers,	340
Number of instruments,	340
Number of operators,	7
Number of subscribers on party lines,	178
Number of subscribers on single lines,	162
Underground system:—	
Conduit, feet,	202,99
Duct, feet,	284,598
Cable, feet,	31,761
Wire, feet,	2,935,225
Overhead system:—	
Pole line, miles,	60.5
Iron wire, miles,	408

NEW ENGLAND TELEPHONE AND TELEGRAPH COMPANY.

Location of principal business office: 101 Milk Street, Boston, Mass.

Date of organization: Oct. 19, 1883.

Date of incorporation: Oct. 19, 1883.

State in which incorporated: New York.

Date of annual meeting: first Monday in May.

Date when company began to give service: October, 1883.

Cities and towns in Massachusetts in which service is given by the company over its own lines:—

Acton,	Ayer,	Boxborough.
Adams,	Barre,	Boxford,
Agawam,	Becket,	Boylston,
Alford,	Bedford,	Braintree,
Amesbury,	Belchertown,	Brimfield,
Amherst,	Bellingham,	Brookfield,
Andover,	Belmont,	Brookline,
Arlington,	Berlin,	Burlington,
Ashburnham,	Bernardston,	Cambridge,
Ashby,	Beverly,	Canton,
Ashfield,	Billerica,	Carlisle,
Ashland,	Blandford,	Charlton,
Athol,	Bolton,	Chelmsford,
Auburn,	Boston,	Chelsea,

Cheshire,	Holland,	Newburyport,
Chester,	Holliston,	Newton,
Chesterfield,	Holyoke,	Norfolk,
Chicopee,	Hopedale,	North Adams,
Clarksburg,	Hopkinton,	North Andover,
Clinton,	Hubbardston,	North Brookfield,
Cohasset,	Hudson,	North Reading,
Concord,	Hull,	Northampton,
Conway,	Huntington,	Northborough,
Cummington,	Hyde Park,	Northbridge,
Dalton,	Ipswich,	Northfield,
Dana,	Lancaster,	Norwood,
Danvers,	Lanesborough,	Orange,
Dedham,	Lawrence,	Otis,
Deerfield,	Lee,	Oxford,
Douglas,	Leicester,	Palmer,
Dover,	Lenox,	Paxton,
Dracut,	Leominster,	Peabody,
Dudley,	Lexington,	Pelham,
Dunstable,	Leyden,	Pepperell,
Easthampton,	Lincoln,	Peru,
East Longmeadow,	Littleton,	Petersham,
Egremont,	Longmeadow,	Phillipston,
Enfield,	Lowell,	Pittsfield,
Erving,	Ludlow,	Plainfield,
Essex,	Lunenburg,	Prescott,
Everett,	Lynn,	Princeton,
Fitchburg,	Lynnfield,	Quincy,
Florida,	Malden,	Randolph,
Foxborough,	Manchester,	Reading,
Framingham,	Marblehead,	Revere,
Franklin,	Marlborough,	Rockport,
Gardner,	Maynard,	Rowley,
Georgetown,	Medfield,	Royalston,
Gloucester,	Medford,	Russell,
Goshen,	Medway,	Rutland,
Grafton,	Melrose,	Salem,
Granby,	Mendon,	Salisbury,
Granville,	Merrimac,	Sandisfield,
Great Barrington,	Methuen,	Saugus,
Greenfield,	Middlefield,	Savoy,
Greenwich,	Middleton,	Sharon,
Groton,	Milford,	Sheffield,
Groveland,	Millbury,	Shelburne,
Hadley,	Millis,	Sherborn,
Hamilton,	Milton,	Shirley,
Hampden,	Monson,	Shrewsbury,
Hancock,	Montague,	Somerville,
Hardwick,	Monterey,	Southampton,
Harvard,	Montgomery,	South Hadley,
Hatfield,	Nahant,	Southborough,
Haverhill,	Natick,	Southbridge,
Hawley,	Needham,	Southwick,
Hingham,	New Ashford,	Spencer,
Hinsdale,	New Braintree,	Springfield,
Holbrook,	New Marlborough,	Sterling,
Holden,	Newbury,	Stockbridge,

Stoneham,	Walpole,	Westford,
Stoughton,	Waltham,	Weathampton,
Stow,	Ware,	Westminster,
Sturbridge,	Warren,	Weston,
Sudbury,	Warwick,	Westwood,
Sunderland,	Washington,	Weymouth,
Sutton,	Watertown,	Whately,
Swampscott,	Wayland,	Wilbraham,
Templeton,	Webster,	Williamsburg,
Tewksbury,	Wellesley,	Williamstown,
Tolland,	Wendell,	Wilmington,
Topsfield,	Wenham,	Winchendon,
Townsend,	West Boylston,	Winchester,
Tyngsborough,	West Brookfield,	Windsor,
Tyringham,	West Newbury,	Winthrop,
Upton,	West Springfield,	Woburn,
Uxbridge,	West Stockbridge,	Worcester,
Wakefield,	Westborough,	Worthington,
Wales,	Westfield,	Wrentham.

This company also gives service in the States of Maine, New Hampshire and Vermont.

GENERAL OFFICERS AND OFFICIAL TITLES.

Thomas Sherwin,	<i>Chairman, Board of Directors.</i>
Jasper N. Keller,	<i>President.</i>
Henry S. Hyde,	<i>Vice-President.</i>
Francis A. Houston,	<i>Vice-President and General Manager.</i>
William R. Driver,	<i>Treasurer.</i>
Edmund S. Willard,	<i>Assistant Treasurer.</i>
Edmund W. Longley,	<i>Secretary, Auditor and Comptroller.</i>
Leslie D. Knowlton,	<i>Assistant Auditor.</i>
Matt B. Jones,	<i>Counsel.</i>
William J. Denver,	<i>Assistant General Manager.</i>
Fred W. Story,	<i>Assistant to the Vice-President.</i>
Edward A. Wilkie,	<i>Recorder.</i>
Moses G. Parker,	<i>Agent.</i>

DIRECTORS AND RESIDENCES.

Thomas Sherwin,	Jamaica Plain, Mass.
Charles F. Ayer,	Boston, Mass.
Union N. Bethell,	Montclair, N. J.
John H. Cahill,	New York, N. Y.
Francis H. Dewey,	Worcester, Mass.
William H. Elliot,	Keene, N. H.
Edward J. Hall,	Morristown, N. J.
John F. Hill,	Augusta, Me.
Winfield S. Hutchinson,	Newton, Mass.
Henry S. Hyde,	Springfield, Mass.
Matt B. Jones,	Newton, Mass.
Jasper N. Keller,	Surry, N. H.
Moses G. Parker,	Lowell, Mass.
Fletcher D. Proctor,	Proctor, Vt.
Theodore N. Vail,	Lyndonville, Vt.

CAPITAL.

Capital authorized by articles of association, and increased from time to time under the general laws,	\$50,000,000 00
Capital authorized by vote of company,	39,178,100 00
Capital paid in, 391,781 shares; par value, \$100,	39,178,100 00
Whole number of stockholders,	4,040
Number of stockholders resident in Massachusetts,	3,597
Amount of stock held in Massachusetts (shares),	150,714
Amount of stock held by parent telephone company (shares),	228,856

DEBTS.

Bonds or notes issued, viz.:—

DATE.	When due.	How secured.	Rate of Interest (Per Cent.).	Amount.
<i>Bonds.</i>				
April 1, 1891,	April 1, 1906,	Debenture,	None.	\$5,000 00
April 1, 1895,	April 1, 1915,	Debenture,	5	500,000 00
April 1, 1896,	April 1, 1916,	Debenture,	5	500,000 00
April 1, 1899,	April 1, 1919,	Debenture,	5	500,000 00
Jan. 1, 1900,	Jan. 1, 1930,	Debenture,	4	1,000,000 00
<i>Notes.</i>				
March 19, 1908,	Demand,	Granville Telephone Company,	6	2,600 00
April 25, 1905,	April 20, 1906,	Real estate, Worcester, Mass.,	4	12,000 00
Total amount of bonds and notes,				\$2,519,600 00
Capital paid in,				39,178,100 00
Total liability for capital and loans,				\$41,697,700 00

CONDENSED STATEMENT OF OPERATING FOR THE YEAR (WHOLE SYSTEM).

	Items.	Totals.
Gross earnings from operation, ¹	\$12,437,162 21	
Less rebates and discounts, ²	211,829 69	
Revenue from operation,		\$12,225,332 52
General expense,	\$1,271,732 95	
Operating expense,	3,264,230 53	
<i>Amounts carried forward,</i>	\$4,535,963 48	\$12,225,332 52

¹ Gross earnings from operation in Massachusetts (see note 1, page 217):—

Gross earnings,	\$10,241,108 08
Less rebates and discounts,	163,284 33
Revenue from operation,	\$10,077,823 75
Miscellaneous income,	251,890 79
Gross earnings and income,	\$10,329,714 54

² See note 2, page 217.

	Items.	Totals.
<i>Amounts brought forward,</i>	\$4,535,963 48	\$12,225,332 52
Current repair,	1,344,144 54	
Reconstruction,	944,005 71	
Deferred maintenance,	1,385,488 35	
Instrument rentals,	557,334 85	
Other expenses,	118,480 76	
Total expenses,		8,885,417 69
Net revenue from operation,		\$3,339,914 83
Miscellaneous income: —		
Real estate revenue,	\$13,422 06	
Income from securities,	240,500 22	
Other miscellaneous income: —		
Interest on bank deposits,	\$45,224 52	
Profit on labor and material,	3,905 95	
	49,130 47	
Total miscellaneous income,		303,052 75
Total income above expenses,		\$3,642,967 58
Fixed charges: —		
Interest on funded debt,	\$115,000 00	
Interest on floating debt,	5,531 02	
Total fixed charges,		120,531 02
Net divisible income,		\$3,522,436 56
Dividends declared: —		
3 per cent. on \$37,437,800, common,	\$1,123,134 00	
3 per cent. on \$39,178,100, common,	1,175,343 00	
Total dividends declared,		2,298,477 00
Surplus for year ending June 30, 1910,		\$1,223,959 56
Depreciation stocks and bonds,		200,000 00
		\$1,023,959 56

EARNINGS (WHOLE SYSTEM).

Gross earnings from operation: —

Exchange service: —

Subscribers' rentals,	\$8,600,618 13	
Pay station local tolls,	473,349 74	
Terminal charges on long-distance business,	63,989 24	
Leased line rentals,	19,530 53	
Miscellaneous exchange earnings,	22,237 81	
Total exchange service,		\$9,179,725 45

Toll service: —

Toll service,	\$3,077,148 38	
Leased line rentals,	50,879 28	
Miscellaneous toll earnings,	1,536 36	
Total toll service,		3,129,564 02

Private line: —

Rental instruments,	\$13,500 86	
Miscellaneous earnings,	48,638 26	
Total private line,		62,139 12

Amount carried forward, \$12,371,428 59

	Items.	Totals.
<i>Amount brought forward,</i>		\$12,371,428 59
Sublicensee:—		
Rental instruments,	\$38,329 66	
Miscellaneous earnings,	27,403 96	
Total sublicensee,		65,733 62
Total gross earnings from operation,		\$12,437,162 21
Less rebates and discounts,		211,829 69
Revenue from operation,		\$12,225,332 52
Miscellaneous income:—		
Real estate revenue,	\$13,422 06	
Dividends on stocks of other companies, and running accounts,	76,540 73	
Interest on bonds and notes of other companies,	163,959 49	
Interest on bank deposits,	45,224 52	
Other miscellaneous income,	3,905 95	
Total miscellaneous income,		303,052 57
Total gross earnings and income,		\$12,528,385 27

EXPENSES (WHOLE SYSTEM).

General expense:—		
Salaries of officers,	\$92,738 24	
Salaries of others,	18,604 08	
Wages of clerks,	102,766 23	
Rent, light and heat,	31,298 83	
Travelling,	5,521 92	
Postage, printing and stationery,	60,899 09	
Directory,	108,172 24	
Taxes,	719,164 41	
Legal,	42,874 57	
Damages and compensation, ¹	—	
Insurance,	42,406 51	
Incidental,	47,286 83	
Total general expense,		\$1,271,732 95
Operating:—		
Superintendence,	\$299,201 82	
Wages of operators,	1,640,362 19	
Wages of others,	581,498 32	
Rent, light and heat,	299,390 17	
Postage, printing and stationery,	145,459 91	
Advertising and canvassing,	186,795 20	
Incidental,	111,522 92	
Total operating expense,		3,264,230 53
Current repairs: ² —		
Exchange overhead lines,	\$323,452 91	
Exchange underground lines,	68,022 74	
Exchange submarine lines,	795 36	
<i>Amounts carried forward,</i>	\$392,271 01	\$4,535,963 48

¹ Total for sums paid for damage was \$38,414.11. The various sums which made up this total have been charged against the expense, reconstruction and construction accounts, as the facts in each case have justified.

² See note 3. page 217.

	Items.	Totals.
<i>Amounts brought forward,</i>	\$392,271 01	\$4,535,963 48
Current repairs—<i>Con.</i>		
Central office equipment,	213,803 44	
Subscribers' equipment,	325,208 73	
Toll overhead lines,	158,180 36	
Toll underground lines,	4,728 16	
Toll submarine lines,	2,634 96	
Incidental,	43,331 47	
Supervision,	203,986 41	
Total maintenance expense,		1,344,144 54
Instrument rentals:—		
Exchange,	\$397,433 25	
Toll,	133,237 73	
Private line,	2,796 26	
Sublicensee,	23,867 59	
Total instrument rentals,		557,334 85
Messenger expense,		2,322 74
Conduit, pole and roof rent,		88,837 77
Sublicensee expense,		27,320 25
Total expenses, not including charges for reconstruction and deferred repairs,		<u>\$6,555,923 63</u>
Reconstruction items charged to expense:¹—		
Exchange overhead lines,	\$278,238 93	
Exchange underground lines,	56,791 44	
Exchange submarine lines,	1,967 71	
Central office equipment,	172,283 48	
Subscribers' station equipment, ²	337,346 54	
Toll overhead lines,	86,257 89	
Toll underground lines,	4,518 14	
Toll submarine lines,	459 84	
Incidental,	6,141 74	
Total of reconstruction items charged to expense,		944,005 71
Deferred maintenance items charged to expense,		1,385,488 35
Total of all operating expenses,		<u>\$8,885,417 69</u>

GENERAL BALANCE SHEET.

Assets.

Exchange construction:—		
Right of way,	\$384,675 32	
Overhead lines,	7,768,390 58	
Underground lines,	7,967,837 12	
Submarine lines,	40,937 94	
Central office equipment,	4,576,546 44	
Subscribers' station equipment,	5,284,258 31	
Total exchange construction and equipment, —————		\$26,022,645 71
<i>Amount carried forward,</i>		<u>\$26,022,645 71</u>

¹ See note 3, page 217.² Reconstruction charges against subscribers' station equipment include cost of moving and removing subscribers' stations, \$309,179.75.

	Items.	Totals.
<i>Amount brought forward,</i>		\$26,022,645 71
Toll construction:—		
Right of way,	\$275,818 24	
Overhead lines,	5,880,426 32	
Underground lines,	4,772,221 10	
Submarine lines,	65,116 13	
Total toll construction,		10,993,581 79
Construction in process,		1,172,804 46
Other real estate required for operation,		1,511,313 20
Investment real estate not required for operation,		117,780 76
Office furniture and fixtures,		247,418 72
Tools and teams,		218,832 11
Repair shop,		105,581 94
Total plant account,		\$40,389,958 69
Securities of other companies,		2,390,487 47
Current assets:—		
Cash on hand,	\$3,851,732 73	
Notes and accounts receivable,	4,806,805 32	
Supplies on hand,	1,398,822 35	
Unexpired insurance,	15,300 81	
Treasury bonds,	3,000 00	
Total current assets,		10,075,661 21
Sinking and other special funds:—		
Prepaid directory,		19,249 03
Total debits,		\$52,875,356 40
Liabilities.		
Capital stock, common,		\$39,178,100 00
Bonded debt,		2,505,000 00
Real estate mortgages,		12,000 00
Current liabilities:—		
Loans and notes payable,	\$2,600 00	
Audited vouchers and accounts,	788,390 69	
Salaries and wages unpaid,	1,673 58	
Dividends not called for,	2,328 00	
Matured interest unpaid,	2,100 00	
Total current liabilities,		797,092 27
Accrued liabilities:—		
Interest accrued but not due,	\$38,843 32	
Taxes accrued but not due,	317,564 99	
Subscribers' rental charged but not yet accrued,	75,965 35	
Other line service,	80 86	
Outstanding toll tickets,	533 28	
Interest charged but not yet accrued,	1,931 08	
Total accrued liabilities,		434,923 88
Sinking and other special funds:—		
Maintenance,	\$4,112,218 85	
Fire insurance,	240,111 55	
Accident insurance,	134,520 24	
<i>Amounts carried forward,</i>	\$4,486,850 64	\$42,927,116 15

	Items.	Totals.
<i>Amounts brought forward,</i>	\$4,486,850 64	\$42,927,116 15
Sinking and other special funds — <i>Con.</i>		
Uncollectible accounts,	374,236 36	
Premium account,	7,160 55	
	<hr/>	4,868,247 55
1908 inventory adjustment, ¹		1,640,155 49
		<hr/>
Total liabilities,		\$49,435,519 19
Balance, surplus,		3,439,837 21
		<hr/>
Total credits,		\$52,875,356 40

PROFIT AND LOSS ACCOUNT.

	Dr.	Cr.
Balance from previous year,		\$2,415,877 65
Gross earnings from operation,		12,437,162 21
Real estate revenue,		13,422 06
Dividends received on stock owned by company,		76,540 73
Interest received on bonds and notes,		52,800 98
Dividend on certificate,		4 00
Interest on running accounts,		111,088 53
Interest on bank balances,		45,224 52
Interest on instalment stock,		65 98
Profit on material and labor furnished,		3,905 95
Operating expenses, including charges on account of reconstruction and deferred repairs,	\$8,762,476 64	
Rebates and discounts,	211,829 69	
Interest on funded debt,	115,000 00	
Interest on floating debt,	5,531 02	
For depreciation: —		
For material in stock at the supply department,	122,941 05	
For stocks and bonds,	200,000 00	
Dividends declared on stock, 6 per cent.,	2,298,477 00	
Balance, surplus,	3,439,837 21	
	<hr/>	<hr/>
	\$15,156,092 61	\$15,156,092 61

PROPERTY ACCOUNTS (ADDITIONS AND DEDUCTIONS DURING THE YEAR).

Additions.

Exchange construction: —	Items.	Totals
Right of way,	\$17,871 67	
Overhead lines,	599,480 35	
Underground lines,	361,800 08	
Submarine lines,	9,071 29	
Central office equipment,	30,025 54	
Subscribers' station equipment,	542,232 63	
Total exchange construction and equipment, ———		\$1,560,481 56
<i>Amount carried forward,</i>		\$1,560,481 56

¹ Inventory adjustment,	\$1,440,155 49
Equipment in territory of the Southern Massachusetts Telephone Company belonging to New England Telephone and Telegraph Company now sold by that company to Southern Massachusetts Telephone Company, included in inventory as plant of Southern Massachusetts Company,	203,000 00
	<hr/>
Reverse of this entry appears in return of Southern Massachusetts Telephone Company.	\$1,640,155 49

	Items.	Totals.
<i>Amount brought forward,</i>		\$1,560,481 56
Toll construction:—		
Right of way,	\$23,935 42	
Overhead lines,	164,432 37	
Underground lines, ¹	12,646 27	
Submarine lines,	1,741 75	
Total toll construction,		177,463 27
Additions to other real estate required for operation,	\$96,501 97	
Real estate not required for operation, ¹	237 39	
Office furniture and fixtures,	62,216 33	
Tools and teams,	51,678 96	
Repair shop, ¹	10,279 52	
		199,880 35
Total additions,		\$1,937,825 18

Deductions.

Property sold:—		
Exchange overhead lines,	\$20,776 99	
Exchange underground lines,	2,014 28	
Central office equipment,	1,840 42	
Subscribers' station equipment,	12,001 47	
Toll overhead lines,	8,643 28	
Total deductions,		45,276 44
Net additions to property account for the year,		\$1,892,548 74
Construction in process,		673,472 71
		\$2,566,021 45

INVENTORY ADJUSTMENT.

Additions.

	Inventory Adjustment.	Total added to Plant Accounts.
Exchange construction:—		
Right of way,	\$307,968 59	\$325,840 26
Overhead lines, ¹	3,409,907 86	2,810,427 51
Underground lines,	1,033,758 38	1,395,558 46
Submarine lines,	9,306 80	18,378 09
Central office equipment,	463,319 94	493,345 48
Subscribers' station equipment,	1,849,649 86	2,391,882 49
Total exchange construction and equipment,	\$254,095 71	\$1,814,577 27
Toll construction:—		
Right of way,	\$235,936 77	\$259,872 19
Overhead lines,	1,019,407 96	1,183,840 33
Underground lines,	4,141,128 89	4,128,482 62
Submarine lines,	57,586 16	59,327 91
Total toll construction,	\$5,454,059 78	\$5,631,523 50
Contracts and licenses,	¹ 4,268,000 00	

¹ Credit item.

STATISTICAL INFORMATION.

	Boston and Suburban Division.	Massachu- setts, Outside Boston and Suburban Division.	All Massa- chusetts.	Outside of Massa- chusetts.	Whole System.
Number of subscribers, . . .	115,346	96,123	211,469	59,367	270,836
Number of stations, . . .	118,723	98,860	217,583	61,245	278,828
Number of operators, . . .	2,010	1,119	3,169	719	3,888
Number of pay stations, . . .	3,377	2,737	6,114	1,878	7,992
Number of subscribers on party lines,	95,802	83,104	178,906	53,211	232,117
Number of subscribers on single lines,	19,544	13,019	32,563	6,156	38,719
Underground system: —					
Conduit, feet, . . .	1,481,701	1,335,816	2,817,517	324,922	3,142,439
Duct, feet, . . .	8,686,752	5,303,578	13,990,330	1,374,818	15,365,178
Cable, feet, . . .	4,109,008	2,763,674	6,872,682	757,394	7,630,076
Wire, miles, . . .	234,466	123,126	357,592	28,199	395,791
Submarine system: —					
Cable, feet, . . .	21,399	8,608	30,067	137,711	167,778
Wire, miles, . . .	474	133	607	707	1,314
Overhead system: —					
Pole line, miles, . . .	1,104	6,971	8,075	7,164	15,259
Iron wire, miles, . . .	1,993	33,792	35,785	27,473	63,258
Copper wire, miles, . . .	47,026	82,011	129,037	52,457	181,494

GENERAL REMARKS AND EXPLANATIONS.

1. "The revenue within the State which is here reported is the revenue which has been collected within the State of Massachusetts. No deduction has been made for such portion of tolls as were collected within the State but transmitted partly over lines lying without the State. Neither has the separation been made of tolls originating at points outside of the territory of the New England Telephone and Telegraph Company but terminating at points within such territory.

If such separation were made, it would probably show that a considerable sum collected within the State of Massachusetts had been earned on toll lines located outside of that State."

2. "Rebates and discounts include charges incident to maintaining the reserve for uncollectible accounts, the regular discount of 20 per cent. on monthly tolls in excess of \$10 from a single telephone, discounts for prompt payment of sub-licensee rentals, and actual losses from uncollectible bills."

3. "Separation of current repair and of reconstruction between exchange and toll accounts has been made as accurately as it has been found possible to make it, but no practical way has been found to properly divide such expenses on pole lines which carry both toll and exchange wires, cables which carry both toll and exchange circuits, switchboards that are used for both toll and exchange connections, wires which at varying times may be used for either toll or exchange purposes, underground conduits which carry both exchange and toll cables, or other portions of the plant that serve partly for exchange and partly for toll purposes. Consequently and unavoidably, the figures here given showing separation between current repair and reconstruction must be considered inaccurate."

PROVIDENCE TELEPHONE COMPANY OF MASSACHUSETTS.

Location of principal business office: 125 Milk Street, Boston, Mass.

Date of organization: Dec. 2, 1890.

Date of incorporation: Feb. 24, 1891.

State in which incorporated: Massachusetts.

Date of annual meeting: first Tuesday in December.

Date when company began to give service: April 28, 1891.

Service is given by this company over its own lines in the towns of

Attleborough,	North Attleborough,	Rehoboth,
Bellingham,	Norton,	Seekonk,
Blackstone,	Plainville,	Swansea.

GENERAL OFFICERS AND OFFICIAL TITLES.

Dexter B. Potter,	.	.	.	.	.	<i>President.</i>
Charles T. Howard,	.	.	.	.	.	<i>Treasurer.</i>
Joseph F. Beck,	.	.	.	.	.	<i>General Manager.</i>
Robert W. Devonshire,	.	.	.	.	.	<i>Clerk.</i>

DIRECTORS AND RESIDENCES.

Dexter B. Potter,	.	.	.	.	.	Providence, R. I.
Charles T. Howard,	.	.	.	.	.	Coventry, R. I.
Joseph F. Beck,	.	.	.	.	.	Providence, R. I.
Robert W. Devonshire,	.	.	.	.	.	Boston, Mass.
Thomas Sherwin,	.	.	.	.	.	Boston, Mass.

CAPITAL.

Capital authorized by charter,	.	.	.	.	.	\$10,000 00
Capital authorized by vote of company,	.	.	.	.	.	80,000 00
Capital paid in, 800 shares; par value, \$100,	.	.	.	.	.	80,000 00

Whole number of stockholders,	.	.	.	.	.	6
Number of stockholders resident in Massachusetts,	.	.	.	.	.	2
Amount of stock held in Massachusetts (shares),	.	.	.	.	.	2
Amount of stock held by the parent telephone company (shares),	.	.	.	.	.	795

DEBTS.

Bonds or notes issued, viz.:—

DATE.	When due.	How secured.	Rate of Interest (Per Cent.).	Amount.
April 16, 1910,	Aug. 16, 1910,	- - -	5	\$10,000 00
Total amount of bonds and notes,				\$10,000 00
Capital paid in,				80,000 00
Total liability for capital and loans,				\$90,000 00

CONDENSED STATEMENT OF OPERATING FOR THE YEAR.

	Items.	Totals.
Gross earnings from operation,	\$55,479 21	
Less rebates and discounts,	277 25	
Revenue from operation,		\$55,201 96
General expense,	\$7,215 37	
Operating expense,	14,794 13	
Current repair,	8,944 05	
Reconstruction,	2,318 00	
Deferred maintenance,	11,263 85	
Instrument rentals,	2,465 01	
Other expenses,	512 55	
Total expenses,		47,512 96
Net revenue from operation,		\$7,689 00
Miscellaneous income:—		
Interest,		194 98
Total income above expenses,		\$7,883 98
Fixed charges:—		
Interest on floating debt,		1,054 32
Surplus for the year ending June 30, 1910,		\$6,829 66

EARNINGS.

Gross earnings from operation:—

Exchange service:—		
Subscribers' rentals,	\$46,178 70	
Pay station local tolls,	1,223 28	
Terminal charges on long-distance business,	1,254 35	
Miscellaneous exchange earnings,	182 08	
Total exchange service,		\$48,838 41
Toll service,		6,598 30
Private line:—		
Rental instruments,		42 50
Total gross earnings from operation,		\$55,479 21
Less rebates and discounts,		277 25
Revenue from operation,		\$55,201 96
Miscellaneous income,		194 98
Total gross earnings and income,		\$55,396 94

EXPENSES.

General expense:—

Salaries of officers,	\$1,360 00
Salaries of others,	1,565 31
Wages of clerks,	180 00
Rent, light and heat,	319 21
Travelling,	51 78
Postage, printing and stationery,	170 29
Directory,	986 31
Amount carried forward,	\$4,632 90

	Items.	Totals.
<i>Amount brought forward,</i>	\$4,632 90	
General expense — <i>Con.</i>		
Taxes,	1,624 57	
Legal,	2 50	
Insurance,	366 40	
Incidental,	198 24	
Inventory expense,	390 76	
Total general expense,		\$7,215 37
Operating: —		
Superintendence,	\$365 00	
Wages of operators,	7,267 32	
Wages of others,	2,241 96	
Rent, light and heat,	2,457 54	
Postage, printing and stationery,	678 06	
Advertising and canvassing,	184 25	
Incidental,	1,600 00	
Total operating expense,		14,794 13
Current repair: —		
Exchange overhead lines,	\$2,703 31	
Exchange underground lines,	499 72	
Central office equipment,	2,076 97	
Subscribers' equipment,	3,664 05	
Total maintenance expense,		8,944 05
Instrument rentals,		2,465 01
Conduit, pole and roof rent,		512 55
Total expenses, not including charges for reconstruction and deferred repairs,		\$33,931 11
Reconstruction items charged to expense: —		
Exchange overhead lines,	\$676 49	
Exchange underground lines,	273 34	
Subscribers' station equipment,	1,224 50	
Toll overhead lines,	143 67	
Total of reconstruction items charged to expense,		2,318 00
Deferred maintenance items charged to expense,		11,263 85
Total of all operating expenses,		\$47,512 96

GENERAL BALANCE SHEET.

Assets.

Exchange construction: —		
Overhead lines,	\$31,462 43	
Underground lines,	44,775 68	
Central office equipment,	13,214 79	
Subscribers' station equipment,	23,208 38	
Total exchange construction and equipment,		\$112,661 28
Toll construction: —		
Overhead lines,	\$6,141 10	
Underground lines,	7,985 33	
Total toll construction,		14,126 43
Total plant account,		\$126,787 71
Amount carried forward,		\$126,787 71

	Items.	Totals.
<i>Amount brought forward,</i>		\$126,787 71
Current assets:—		
Cash on hand,	\$6,744 70	
Notes and accounts receivable,	4,030 77	
Supplies on hand,	1,489 00	
Total current assets,		12,264 47
Total debits,		\$139,052 18
Liabilities.		
Capital stock, common,		\$80,000 00
Current liabilities:—		
Loans and notes payable,	\$10,000 00	
Audited vouchers and accounts,	14,873 51	
Salaries and wages unpaid,	207 85	
Total current liabilities,		25,081 36
Accrued liabilities:—		
Reserve for private line,		17 50
Sinking and other special funds:—		
Reserve for bad accounts,	\$654 54	
Reserve for depreciation,	15,801 79	
Reserve for extraordinary repairs,	844 64	
Total sinking and other special funds,		17,300 97
Total liabilities,		\$122,399 83
Balance, surplus,		16,652 35
Total credits,		\$139,052 18

PROFIT AND LOSS ACCOUNT.

	Dr.	Cr.
Balance from previous year,		\$9,822 69
Gross earnings from operation,		55,479 21
Miscellaneous income,		194 98
Operating expenses, including charges on account of reconstruction and deferred repairs,	\$47,512 96	
Rebates and discounts,	277 25	
Interest on floating debt,	1,054 32	
Balance, surplus,	16,652 35	
	\$65,496 88	\$65,496 88

PROPERTY ACCOUNTS (ADDITIONS AND DEDUCTIONS DURING THE YEAR).

Additions.

	Items.	Totals.
Exchange construction:—		
Overhead lines,	\$5,293 43	
Underground lines,	862 15	
Central office equipment,	188 07	
Subscribers' station equipment,	7,768 60	
Total exchange construction and equipment,		\$14,112 25
<i>Amount carried forward,</i>		\$14,112 25

	Items.	Totals.
<i>Amount brought forward,</i>		\$14,112 25
Toll construction:—		
Overhead lines,	\$1,455 60	
Underground lines,	7,459 69	
Total toll construction,		8,915 29
Total additions,		\$23,027 54
<i>Deductions.</i>		
Overhead lines,	\$3,150 80	
Underground lines,	516 64	
Central office equipment,	145 64	
Subscribers' station equipment,	1,823 79	
Construction in process,	126 71	
Office furniture and fixtures,	162 75	
Total deductions,		5,926 33
Net additions to property account for the year,		\$17,101 21

STATISTICAL INFORMATION.

Number of subscribers,	1,612
Number of instruments,	1,825
Number of operators,	21
Number of pay stations,	32
Number of subscribers on party lines,	1,514
Number of subscribers on single lines,	93
Underground system:—	
Conduit, feet,	19,924.7
Duct, feet,	51,213.7
Cable, feet,	36,782
Wire, feet,	8,666,220
Overhead system:—	
Pole line, miles,	67.64
Iron wire, miles,	879.79
Copper wire, miles,	912.94

THE SOUTHERN MASSACHUSETTS TELEPHONE COMPANY.

Location of principal business office: 101 Milk Street, Boston, Mass.

Date of organization: Feb. 17, 1880.

Date of incorporation: Feb. 17, 1880.

State in which incorporated: Massachusetts.

Date of annual meeting: second Saturday in February.

Date when company began to give service: February, 1880.

Cities and towns in Massachusetts in which service is given by the company over its own lines:—

Abington,
Acushnet,
Avon,

Barnstable,
Berkley,
Bourne,

Brewster,
Bridgewater,
Brockton,

Carver,	Harwich,	Raynham,
Chatham,	Kingston,	Rehoboth,
Chilmark,	Lakeville,	Rochester,
Dartmouth,	Mansfield,	Rockland,
Dennis,	Marion,	Sandwich,
Dighton,	Marshfield,	Scituate,
Duxbury,	Mashpee,	Somerset,
East Bridgewater,	Mattapoisett,	Swansea,
Eastham,	Middleborough,	Taunton,
Easton,	Nantucket,	Tisbury,
Edgartown,	New Bedford,	Truro,
Fairhaven,	Norton,	Wareham,
Fall River,	Norwell,	Wellfleet,
Falmouth,	Oak Bluffs,	West Bridgewater,
Freetown,	Orleans,	Westport,
Gay Head,	Pembroke,	West Tisbury,
Halifax,	Plymouth,	Whitman,
Hanover,	Plympton,	Yarmouth.
Hanson,	Provincetown,	

This company also gives service in the State of Rhode Island.

GENERAL OFFICERS AND OFFICIAL TITLES.

Thomas Sherwin,	<i>President.</i>
William R. Driver,	<i>Treasurer.</i>
Edmund S. Willard,	<i>Assistant Treasurer.</i>
Edmund W. Longley,	<i>Clerk, Auditor and Comptroller.</i>
Jasper N. Keller,	<i>Vice-President.</i>
Francis A. Houston,	<i>General Manager.</i>
William J. Denver,	<i>Assistant General Manager.</i>
Leslie D. Knowlton,	<i>Assistant Auditor.</i>
Webster A. Arey,	<i>Assistant Auditor.</i>

DIRECTORS AND RESIDENCES.

Charles F. Ayer,	Boston, Mass.
Charles W. Clifford,	New Bedford, Mass.
Theodore N. Vail,	Lyndonville, Vt.
Francis A. Houston,	Concord, Mass.
Jasper N. Keller,	Surry, N. H.
Moses G. Parker,	Lowell, Mass.
Thomas Sherwin,	Jamaica Plain, Mass.

CAPITAL.

Capital authorized by charter and increased under the general law,	\$600,000 00
Capital authorized by vote of company,	600,000 00
Capital paid in, 6,000 shares; par value, \$100,	600,000 00
Whole number of stockholders,	10
Number of stockholders resident in Massachusetts,	7
Amount of stock held in Massachusetts (shares),	55
Amount of stock held by parent telephone company (shares),	5,925

DEBTS.

Bonds or notes issued, viz.: —

DATE.	When due.	How secured.	Rate of Interest (Per Cent.).	Amount.
June 1, 1896,	June 1, 1916,	Debenture,	5	\$200,000 00
Total amount of bonds and notes,				\$200,000 00
Capital paid in,				600,000 00
Total liability for capital and loans, ¹				\$800,000 00

CONDENSED STATEMENT OF OPERATING FOR THE YEAR (WHOLE SYSTEM).

	Items.	Totals.
Gross earnings from operation, ²		\$863,372 01
Less rebates and discounts,		14,223 63
Revenue from operation,		\$849,148 38
General expense,	\$37,595 45	
Operating expense,	240,888 70	
Current repair,	194,303 78	
Reconstruction,	77,424 16	
Deferred maintenance,	31,788 36	
Instrument rentals,	37,592 25	
Other expenses,	5,615 56	
Total expenses,		625,208 26
Net revenue from operation,		\$223,940 12
Miscellaneous income,		543 12
Total income above expenses,		\$224,483 24
Fixed charges: —		
Interest on funded debt,	\$10,000 00	
Interest on floating debt,	96,633 94	
Total fixed charges,		106,633 94
Surplus of net income above fixed charges,		\$117,849 30
Dividends declared: —		
6 per cent. on \$600,000,		36,000 00
Surplus for year ending June 30, 1910,		\$81,849 30

¹ Not including floating debt, \$1,782,053.52.² Gross earnings from operation in Massachusetts: —

Gross earnings,	\$849,258 58
Less rebates and discounts,	14,064 60
Revenue from operation,	\$835,193 98
Miscellaneous income,	534 27
Gross earnings and income,	\$835,728 25

EARNINGS (WHOLE SYSTEM).

Gross earnings from operation:—

	Items.	Totals.
Exchange service:—		
Subscribers' rentals,	\$592,178 02	
Pay station local tolls,	28,888 68	
Terminal charges on long-distance business,	7,430 42	
Leased line rentals,	1,809 90	
Miscellaneous exchange earnings,	2,076 76	
Total exchange service,		\$632,183 78
Toll service,	\$228,022 38	
Leased line rentals,	1,098 68	
Total toll service,		229,121 04
Private line:—		
Rental instruments,	\$1,651 99	
Miscellaneous earnings,	415 20	
Total private line,		2,067 19
Total gross earnings from operation,		\$863,372 01
Less rebates and discounts,		14,223 63
Revenue from operation,		\$849,148 38
Miscellaneous income:—		
Interest on bank deposits,	\$516 42	
Other miscellaneous income,	26 70	
Total miscellaneous income,		543 12
Total gross earnings and income,		\$849,691 50

EXPENSES (WHOLE SYSTEM).

General expense:—

Salaries of officers,	\$5,313 13	
Salaries of others,	619 72	
Wages of clerks,	4,173 67	
Rent, light and heat,	906 57	
Travelling,	353 76	
Postage, printing and stationery,	1,031 20	
Directory,	2,792 03	
Taxes,	14,494 04	
Legal,	3,140 40	
Damages and compensation, ¹	—	
Insurance,	3,215 09	
Incidental,	1,555 84	
Total general expense,		\$37,595 45
Operating:—		
Superintendence,	\$26,554 08	
Wages of operators,	103,237 06	
Wages of others,	49,736 65	
Rent, light and heat,	14,316 42	
Postage, printing and stationery,	18,249 13	
Advertising and canvassing,	18,324 70	
Incidental,	10,470 66	
Total operating expenses,		240,888 70
Amount carried forward,		\$278,484 15

¹ Total of sums paid for damage was \$4,305.41. The various sums which make up this total have been charged against the expense, reconstruction and construction accounts as the facts in each case have justified.

	Items.	Totals.
<i>Amount brought forward,</i>		\$278,484 15
Current repair: ¹ —		
Exchange overhead lines,	\$66,058 60	
Exchange underground lines,	4,981 64	
Exchange submarine lines,	61 14	
Central office equipment,	12,862 30	
Subscribers' equipment,	28,918 22	
Toll overhead lines,	59,030 58	
Toll underground lines,	233 51	
Toll submarine lines,	54 02	
Incidental,	5,633 03	
Supervision,	16,470 74	
Total maintenance expense,		194,303 78
Instrument rentals:—		
Exchange,	\$27,491 95	
Toll,	9,943 41	
Private line,	156 89	
Total instrument rentals,		37,592 25
Messenger expense,		811 21
Conduit, pole and roof tent,		4,804 35
Total charges, not including charges for reconstruction and deferred repairs,		\$515,995 74
Reconstruction items charged to expense: ¹ —		
Exchange overhead lines,	\$40,519 85	
Exchange underground lines,	2,406 25	
Exchange submarine lines,	644 24	
Central office equipment,	1,370 37	
Subscribers' station equipment,	25,324 70	
Toll overhead lines,	7,430 99	
Toll submarine lines,	58 86	
Incidental, ²	331 10	
Total of reconstruction items charged to expense,		77,424 16
Deferred maintenance items charged to expense,		31,788 36
Total of all operating expenses,		\$625,208 26

GENERAL BALANCE SHEET.

Assets.

Exchange construction :		
Right of way,	\$56,305 99	
Overhead lines,	1,038,086 01	
Underground lines,	782,718 82	
Submarine lines,	4,727 02	
Central office equipment,	315,732 92	
Subscriber's station equipment,	453,542 05	
Total exchange construction and equipment,		\$2,651,112 81
<i>Amount carried forward,</i>		\$2,651,112 81

¹ See note 1, page 229.² Credit item.

	Items.	Totals.
<i>Amount brought forward,</i>		\$2,651,112 81
Toll construction : —		
Right of way,	\$18,616 22	
Overhead lines,	527,082 67	
Underground lines,	162,629 99	
Submarine lines,	15,523 30	
Total toll construction,		723,852 18
Construction in process,		71,792 36
Real estate required for operation,		140,719 90
Office furniture and fixtures,		7,136 72
Tools and teams,		28,027 06
Total plant account,		\$3,622,641 03
Securities of other companies,		70 00
Current assets: —		
Cash on hand,	\$81,505 30	
Notes and accounts receivable,	138,357 42	
Supplies on hand,	125,395 44	
Unexpired insurance,	235 09	
Total current assets,		345,493 25
Total debits,		\$3,968,204 28
<i>Liabilities.</i>		
Capital stock, common,		\$600,000 00
Bonded debt,		200,000 00
Current liabilities: —		
Audited vouchers and accounts,	\$1,781,190 64	
Salaries and wages unpaid,	862 88	
Total current liabilities,		1,782,053 52
Accrued liabilities: —		
Interest accrued but not due,	\$857 94	
Taxes accrued but not due,	5,766 87	
Subscriber's rental charged but not yet accrued,	6,264 70	
Reserve for directory,	1,196 99	
Total accrued liabilities,		14,086 50
Sinking and other special funds: —		
Reserve for fire insurance,	\$28,309 00	
Reserve for uncollected accounts,	36,824 50	
Reserve for deferred maintenance,	250,275 47	
Reserve for accident insurance,	6,180 65	
		321,589 62
1908 inventory adjustment, ¹		862,159 01
Total liabilities,		\$3,779,888 65
Balance, surplus,		188,315 63
Total credits,		\$3,968,204 28

¹ See note 2, page 229.

PROFIT AND LOSS ACCOUNT.

	Dr.	Cr.
Balance from previous year,		\$106,466 33
Gross earnings from operation,		863,372 01
Miscellaneous income,		543 12
Operating expenses, including charges on account of reconstruction and deferred repairs,	\$625,208 26	
Rebates and discounts,	14,223 63	
Interest on funded debt,	10,000 00	
Interest on floating debt,	96,633 94	
Dividends declared on stock : —		
1½ per cent., due Oct. 15, 1909,	9,000 00	
1½ per cent., due Jan. 15, 1910,	9,000 00	
1½ per cent., due March 31, 1910,	9,000 00	
1½ per cent., due June 30, 1910,	9,000 00	
Balance, surplus,	188,315 63	
	<hr/>	<hr/>
	\$970,381 46	\$970,381 46

PROPERTY ACCOUNTS (ADDITIONS DURING THE YEAR).

Exchange construction: —	Items.	Totals.
Right of way,	\$4,454 25	
Overhead lines,	90,832 22	
Underground lines,	17,228 93	
Submarine lines, ¹	1,017 54	
Central office equipment,	15,757 61	
Subscribers' station equipment,	52,931 59	
Total exchange construction and equipment, ———		\$180,187 06
Toll construction: —		
Right of way,	\$105 23	
Overhead lines,	17,288 77	
Underground lines,	77 28	
Submarine lines, ¹	103 22	
Total toll construction and equipment, ———		17,368 06
Additions to other real estate required for operation,	\$40 80	
Construction in process,	14,139 19	
Office furniture and fixtures,	873 90	
Tools and teams,	3,936 56	
	<hr/>	<hr/>
		19,000 45
Net additions to property account for the year, ²		\$216,555 57

¹ Credit item.² See note 3, page 229.

STATISTICAL INFORMATION.

	In Massachusetts.	Outside Massachusetts.	Whole System.
Number of subscribers,	25,391	299	25,690
Number of stations,	26,319	314	26,633
Number of operators,	243	-	243
Number of pay stations,	928	15	943
Number of subscribers on party lines,	22,558	291	22,849
Number of subscribers on single lines,	2,833	8	2,841
Underground system: —			
Conduit, feet,	313,492	-	313,492
Duct, feet,	1,380,611	-	1,380,611
Cable, feet,	474,089	-	474,089
Wire, miles,	21,101	-	21,101
Submarine system: —			
Cable, feet,	23,068	7,298	30,366
Wire, miles,	123	66	189
Overhead system: —			
Pole line, miles,	1,782	61	1,843
Iron wire, miles,	10,872	459	11,331
Copper wire, miles,	17,883	201	18,084

GENERAL REMARKS AND EXPLANATIONS.

1. "Separation of current repair and of reconstruction has been made as accurately as it has been found possible to make it, but no practical way has been found to properly divide such expenses on pole lines which carry both toll and exchange wires, cables that carry both toll and exchange circuits, switchboards that are used for both toll and exchange connections, wires which at varying times may be used for either toll or exchange purposes, underground conduits which carry both exchange and toll cables, or other portions of the plant that serve partly for exchange and partly for toll purposes. Consequently and unavoidably the figures here given showing separation between current repair and reconstruction must be considered inaccurate."

2. "Inventory adjustment, \$1,062,159 01
 Equipment in territory of the Southern Massachusetts
 Telephone Company belonging to New England Tele-
 phone and Telegraph Company, now sold by that com-
 pany to Southern Massachusetts Telephone Company,
 included in inventory as plant of Southern Massachusetts
 Telephone Company, 200,000 00
 Reverse of this entry appears on return of New England
 Telephone and Telegraph Company, \$862,159 01"

3. "Additions to property accounts during current year, . . . \$216,555 57
 Inventory adjustment, 1,062,159 01

Total added to book value of property during the current
 year, \$1,278,714 58"

NONOPERATING AND SMALL TELEPHONE COMPANIES.

BEECHMONT INDEPENDENT TELEPHONE COMPANY.

Location of principal business office: East Windsor, Mass.

Date of organization: January, 1906.

Date of annual meeting: the last Saturday in June.

Date when company began to give service: February, 1906.

Service is given by this company over its own lines in the towns of Cummington, Peru and Windsor.

GENERAL OFFICERS AND OFFICIAL TITLES.

Archie L. Tower,	.	.	.	.	.	.	<i>President.</i>
William R. Pierce,	.	.	.	.	.	.	<i>Treasurer and Manager.</i>
Adah L. Pierce,	.	.	.	.	.	.	<i>Secretary.</i>

DIRECTORS AND RESIDENCES.

Archie L. Tower,	.	.	.	.	.	.	Adams, Mass.
W. R. Pierce,	.	.	.	.	.	.	East Windsor, Mass.
C. H. Ball,	.	.	.	.	.	.	East Windsor, Mass.
O. D. Jacobs,	.	.	.	.	.	.	East Windsor, Mass.
J. A. Shaw,	.	.	.	.	.	.	East Windsor, Mass.
G. L. Miner,	.	.	.	.	.	.	East Windsor, Mass.

CAPITAL.

Capital paid in,	.	.	.	.	.	.	.	\$500 00
Number of stockholders,	.	.	.	.	.	.	.	9
Number of stockholders resident in Massachusetts,	.	.	.	.	.	.	.	9

EARNINGS AND EXPENSES.

Gross earnings,	.	.	.	.	.	.	.	\$70 00
Expenses,	.	.	.	.	.	.	.	12 00
Net earnings,	.	.	.	.	.	.	.	\$58 00
Dividends,	.	.	.	.	.	.	.	185 00
Deficit for the year,	.	.	.	.	.	.	.	\$127 00
Surplus balance from last year,	.	.	.	.	.	.	.	185 00
Surplus June 30, 1910,	.	.	.	.	.	.	.	\$58 00

GENERAL BALANCE SHEET.

Assets.

Property accounts,	.	.	.	.	.	.	.	\$500 00
Notes and accounts receivable,	.	.	.	.	.	.	.	50 00
Cash on hand,	.	.	.	.	.	.	.	8 00
Total debits,	.	.	.	.	.	.	.	\$558 00

Liabilities.

Capital stock,	.	.	.	.	.	.	.	\$500 00
Surplus,	.	.	.	.	.	.	.	58 00
Total credits,	.	.	.	.	.	.	.	\$558 00

STATISTICAL INFORMATION.

Number of subscribers,	12
Number of instruments,	13
Overhead system:—	
Pole line, miles,	6
Iron wire, miles,	6

BERNARDSTON AND GILL TELEPHONE COMPANY.

Location of principal business office: Bernardston, Mass.

Date when company began to give service: Feb. 1, 1903.

Service is given by this company over its own lines in the towns of Bernardston, Gill and Leyden.

GENERAL OFFICERS.

A. H. and C. R. Nelson, *Managers.*

CAPITAL.

Capital paid in, \$4,000 00

EARNINGS AND EXPENSES.

Gross earnings,	\$1,266 92
Expenses,	473 58
Net earnings,	\$793 34

GENERAL BALANCE SHEET.

Assets.

Property accounts,	\$4,000 00
Accounts receivable,	300 00
Supplies on hand,	10 00
Total debits,	\$4,310 00

Liabilities.

Capital stock,	\$4,000 00
Surplus,	310 00
Total credits,	\$4,310 00

STATISTICAL INFORMATION.

Number of subscribers,	112
Number of instruments,	112
Number of operators,	3
Number of pay stations,	4
Number of subscribers on party lines,	108
Overhead system:—	
Pole line, miles,	43
Iron wire, miles,	115

NOTE. — "Tolls went to operators for their fees, let it be whatever it is, probably amounting to about \$25 per month to them. A record is kept by the New England Telephone and Telegraph Company of the tolls, and must be returned by them."

THE BOLTON TELEPHONE COMPANY.

Location of principal business office: Bolton, Mass.

Date of organization: January, 1906.

Date of incorporation: January, 1906.

State in which incorporated: Massachusetts.

Date of annual meeting: January 15.

Date when company began to give service: January, 1906.

Service is given by this company over its own lines in the town of Bolton.

GENERAL OFFICERS AND OFFICIAL TITLES.

Edward D. Emerson,	.	.	.	.	.	.	President.
Franklin J. Hamblin,	.	.	.	.	.	.	Treasurer.

DIRECTORS AND RESIDENCES.

Edward D. Emerson,	.	.	.	.	.	.	Bolton, Mass.
William E. Litchfield,	.	.	.	.	.	.	Newton, Mass.
Franklin J. Hamblin,	.	.	.	.	.	.	Bolton, Mass.

CAPITAL.

Capital paid in,	.	.	.	.	.	.	.	\$1,500 00
Number of stockholders,	.	.	.	.	.	.	.	25
Number of stockholders resident in Massachusetts,	.	.	.	.	.	.	.	25

EARNINGS AND EXPENSES.

Gross earnings:—							
Exchange service,	.	.	.	.	.	.	\$847 33
Toll service,	.	.	.	.	.	.	482 02
Miscellaneous earnings,	.	.	.	.	.	.	20 38
Total gross earnings,	.	.	.	.	.	.	\$1,349 73
Expenses,	.	.	.	.	.	.	714 91
Net earnings,	.	.	.	.	.	.	\$634 82
Interest payments,	.	.	.	.	.	.	15 92
Net profit,	.	.	.	.	.	.	\$618 90
Surplus balance from last year,	.	.	.	.	.	.	703 36
							\$1,322 26
Miscellaneous charges to surplus,	.	.	.	.	.	.	170 38
Surplus June 30, 1910,	.	.	.	.	.	.	\$1,151 88

GENERAL BALANCE SHEET.

Assets.

Property accounts,	.	.	.	.	.	.	\$1,930 94
Notes and accounts receivable,	.	.	.	.	.	.	91 34
Cash on hand,	.	.	.	.	.	.	188 80
Reserve fund,	.	.	.	.	.	.	504 48
Total debits,	.	.	.	.	.	.	\$2,715 56

Liabilities.

Capital stock,	.	.	.	.	.	.	.	.	.	\$1,500 00
Accounts payable,	.	.	.	.	.	.	.	.	.	63 68
Balance, surplus,	.	.	.	.	.	.	.	.	.	1,151 88
										<hr/>
Total credits,	.	.	.	.	.	.	.	.	.	\$2,715 56

STATISTICAL INFORMATION.

Number of subscribers,	.	.	.	.	.	.	.	.	.	55
Number of instruments,	.	.	.	.	.	.	.	.	.	57
Number of operators,	.	.	.	.	.	.	.	.	.	1
Number of pay stations,	.	.	.	.	.	.	.	.	.	1
Number of subscribers on party lines,	.	.	.	.	.	.	.	.	.	55
Overhead system: —										
Pole line, miles,	.	.	.	.	.	.	.	.	.	21
Iron wire, miles,	.	.	.	.	.	.	.	.	.	50

CHELMSFORD TELEPHONE COMPANY.

Location of principal business office: Chelmsford, Mass.

Date of organization: Dec. 23, 1903.

Date of annual meeting; first Monday in January.

Date when company began to give service: Jan. 4, 1904.

Service is given by this company over its own lines in the town of Chelmsford.

GENERAL OFFICERS AND OFFICIAL TITLES.

Joseph E. Warren,	<i>President.</i>
Eben T. Adams,	<i>Clerk and Treasurer.</i>

CAPITAL.

Capital paid in,	\$500 00
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EARNINGS AND EXPENSES.

Gross earnings,	\$159 30
Expenses,	142 67
										<hr/>
Net earnings,	\$16 63

GENERAL BALANCE SHEET.

Assets.

Property accounts,	.	.	.	.	.	.	.	.	.	\$500 00
Supplies on hand,	.	.	.	.	.	.	.	.	.	7 00
Cash on hand,	.	.	.	.	.	.	.	.	.	12 98
										<hr/>
Total debits,	.	.	.	.	.	.	.	.	.	\$519 98

Liabilities.

Capital stock,	.	.	.	.	.	.	.	.	.	\$500 00
Balance, surplus,	.	.	.	.	.	.	.	.	.	19 98
										<hr/>
Total credits,	.	.	.	.	.	.	.	.	.	\$519 98

STATISTICAL INFORMATION.

Number of subscribers,	26
Number of instruments,	31
Number of operators,	1
Number of subscribers on party lines,	26
Overhead system: —	
Pole line, miles,	8
Iron wire, miles,	16

COLUMBIA AND RENSSELAER TELEPHONE AND TELEGRAPH COMPANY.

Location of principal business office: West Lebanon, N. Y.

Date of organisation: March, 1894.

Date of incorporation: March, 1894.

State in which incorporated: New York.

Date of annual meeting: July 5.

Date when company began to give service: March, 1894.

Service is given by this company over its own lines in the town of Hancock, Mass., and in the State of New York.

GENERAL OFFICERS AND OFFICIAL TITLES.

Abner S. Haight,	<i>President.</i>
Warren Fowler,	<i>Vice-President and General Manager.</i>
Mary J. Fowler,	<i>Secretary and Treasurer.</i>

DIRECTORS AND RESIDENCES.

Abner S. Haight,	61 Worth Street, New York, N. Y.
Harriet E. Haight,	61 Worth Street, New York, N. Y.
F. E. Haight,	61 Worth Street, New York, N. Y.
Austin D. Haight,	New Lebanon Center, N. Y.
Warren Fowler,	West Lebanon, N. Y.
Mary J. Fowler,	West Lebanon, N. Y.
May F. Fowler,	West Lebanon, N. Y.

CAPITAL.

Capital paid in,	\$1,000 00
Number of stockholders,	7
Number of stockholders resident in Massachusetts,	None.

EARNINGS AND EXPENSES.

Gross earnings,	\$12,332 64
Expenses,	7,856 00
Net earnings,	\$4,476 64
Interest payments,	69 86
Net profit,	\$4,406 78
Surplus balance from last year,	25,650 34
Surplus June 30, 1909,	\$30,057 12

GENERAL BALANCE SHEET.

Assets.

Property accounts,	\$30,107 60
Notes and accounts receivable,	805 25
Cash on hand,	545 85
Total debits,	\$31,457 97

Liabilities.

Capital stock,	\$1,000 00
Accounts payable,	417 30
Balance, surplus,	30,040 67
Total credits,	\$31,457 97

STATISTICAL INFORMATION.

Number of subscribers,	675
Number of instruments,	715
Number of operators,	11
Number of pay stations,	10
Number of subscribers on party lines,	665
Number of subscribers on single lines,	9
Overhead system: —	
Pole line, miles,	100
Iron wire, miles,	700

NOTE. — "We have no poles in Massachusetts. One circuit on poles of other lines, about one mile in length, with one subscriber. We have fourteen instruments connected to lines owned by farmers, which includes everything we have in Massachusetts."

"Gross earnings in Massachusetts about \$200."

CRESCENT TELEPHONE COMPANY.

Location of principal business office: New Salem, Mass.

Date when company began to give service: October, 1902.

Service is given by this company over its own lines in the towns of New Salem and Orange.

GENERAL OFFICER.

Levi Wallace Flagg, *Owner.*

CAPITAL.

Capital paid in,	\$1,200 00
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EARNINGS AND EXPENSES.

Gross earnings,	\$120 00
Expenses,	8 00
Net earnings,	\$112 00
Dividends,	112 00

GENERAL BALANCE SHEET.

Assets.

Property accounts,	\$500 00
Notes and accounts receivable,	64 00
Balance, deficit,	636 00
Total debits,	\$1,200 00

Liabilities.

Capital stock,	\$1,200 00
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STATISTICAL INFORMATION.

Number of subscribers,	16
Number of instruments,	18
Number of subscribers on party lines,	16
Overhead system:—	
Pole line, miles,	13
Iron wire, miles,	26

THE FARMERS MUTUAL TELEPHONE COMPANY OF BRISTOL COUNTY.

Location of principal business office: Norton, Mass.

Date of incorporation: Sept. 2, 1902.

State in which incorporated: Massachusetts.

Date of annual meeting: second Tuesday in May.

Date when company began to give service: previous to January, 1903.

Service is given by this company over its own lines in Norton, Mass.

GENERAL OFFICERS AND OFFICIAL TITLES.

Arthur M. Round,	<i>President.</i>
Frank A. Clapp,	<i>Superintendent.</i>
Charles B. Caswell,	<i>Clerk and Treasurer.</i>

DIRECTORS AND RESIDENCES.

Arthur M. Round,	Norton, Mass.
Samuel V. Cole,	Norton, Mass.
Frank A. Clapp,	Norton, Mass.
Charles G. Clapp,	Norton, Mass.
Homer L. Lane,	Norton, Mass.

CAPITAL.

Capital paid in,	\$1,050 00
Number of stockholders,	13
Number of stockholders resident in Massachusetts,	13
Amount of notes outstanding,	\$125 00

EARNINGS AND EXPENSES.

Gross earnings,	\$132 00
Expenses,	190 96
Net deficit,	\$58 96

GENERAL BALANCE SHEET.

Assets.

Property accounts,	\$1,224 00
Cash on hand,	5 97
Balance, deficit,	114 42
Total debits,	\$1,344 39

Liabilities.

Capital stock,	\$1,050 00
Notes payable,	125 00
Accounts payable,	125 00
Other liabilities,	44 39
Total credits,	\$1,344 39

STATISTICAL INFORMATION.

Number of subscribers,	15
Number of instruments,	21
Number of subscribers on party lines,	13
Number of subscribers on single lines,	2
Overhead system: —	
Pole line, miles,	6
Iron wire, miles,	6

GRANBY TELEPHONE AND TELEGRAPH COMPANY.

Location of principal business office: Granby, Mass.

Date of organization: February, 1903.

Date of incorporation: April, 1903.

State in which incorporated: Massachusetts.

Date of annual meeting: third Monday of January.

Date when company began to give service: May, 1903.

Service is given by this company over its own lines in the towns of Granby and Ludlow.

GENERAL OFFICERS AND OFFICIAL TITLES.

George R. Smith,	<i>President.</i>
Willard A. Taylor,	<i>Secretary and Treasurer.</i>
Winfred F. Forward,	<i>Manager.</i>
Henry H. Moody,	<i>Auditor.</i>

DIRECTORS AND RESIDENCES.

Henry H. Moody,	Granby, Mass.
George R. Smith,	Granby, Mass.
George F. Bell,	Granby, Mass.
Dexter R. Barnes,	Granby, Mass.
Dwight C. Nutting,	Granby, Mass.
Horace S. Taylor,	Granby, Mass.
Winfred F. Forward,	Granby, Mass.

CAPITAL.	
Capital paid in,	\$1,200 00
Number of stockholders,	35
Number of stockholders resident in Massachusetts.	34
Amount of stock held in Massachusetts,	\$1,100 00

EARNINGS AND EXPENSES.	
Gross earnings:—	
Exchange service,	\$728 00
Toll service,	113 25
Total gross earnings,	\$841 25
Expenses,	616 28
Net earnings,	\$224 97
Dividends,	48 00
Surplus June 30, 1910,	\$176 97

GENERAL BALANCE SHEET.	
<i>Assets.</i>	
Property accounts,	\$1,200 00
Cash on hand and accounts receivable,	176 97
Total debits,	\$1,376 97
<i>Liabilities.</i>	
Capital stock,	\$1,200 00
Accounts payable,	65 47
Balance, surplus,	111 50
Total credits,	\$1,376 97

STATISTICAL INFORMATION.	
Number of subscribers,	55
Number of instruments,	55
Number of operators,	4
Number of pay stations,	1
Number of subscribers on party lines,	52
Number of subscribers on single lines,	3
Overhead system:—	
Pole line, miles,	15
Iron wire, miles,	30

HAMPDEN AUTOMATIC TELEPHONE COMPANY.

Location of principal business office: 307 Main Street, Springfield, Mass.
Date of organization: Feb. 3, 1900.
Date of incorporation: Feb. 8, 1900.
State in which incorporated: Massachusetts.
Date of annual meeting: first Tuesday in April.

GENERAL OFFICERS AND OFFICIAL TITLES.

Charles H. Churchill,	.	.	.	.	.	<i>President.</i>
William E. Wright,	.	.	.	.	.	<i>Vice-President.</i>
Samuel D. Sherwood,	.	.	.	.	.	<i>Treasurer.</i>
Edward W. Beattie,	.	.	.	.	.	<i>Auditor.</i>
Fred A. Delabarre,	.	.	.	.	.	<i>Clerk.</i>

DIRECTORS AND RESIDENCES.

Charles H. Churchill,	.	.	.	.	.	Springfield, Mass.
Samuel D. Sherwood,	.	.	.	.	.	Springfield, Mass.
Orlando M. Baker,	.	.	.	.	.	Springfield, Mass.
Daniel E. Leary,	.	.	.	.	.	Springfield, Mass.
William E. Wright,	.	.	.	.	.	Springfield, Mass.
William G. McKechnie,	.	.	.	.	.	Springfield, Mass.
Joseph T. Herrick,	.	.	.	.	.	Springfield, Mass.
Fred A. Delabarre,	.	.	.	.	.	Conway, Mass.

CAPITAL.

Capital paid in,	.	.	.	.	.	.	\$7,480 00
Number of stockholders,	.	.	.	.	.	.	11
Number of stockholders resident in Massachusetts,	.	.	.	.	.	.	10

GENERAL BALANCE SHEET.

Assets.

Property accounts,	.	.	.	.	.	.	\$1,000 00
Cash on hand,	.	.	.	.	.	.	298 17
Balance, deficit,	.	.	.	.	.	.	6,181 83
Total debits,	.	.	.	.	.	.	\$7,480 00

Liabilities.

Capital stock,	.	.	.	.	.	.	\$7,480 00
Total credits,	.	.	.	.	.	.	\$7,480 00

NOTE. — This is not an operating company.

HEATH LOCAL TELEPHONE ASSOCIATION.

Location of principal business office: North Heath, Mass.

Date of organization: Nov. 1, 1906.

Date when company began to give service: Nov. 1, 1906.

Service is given by this company over its own lines in the town of Heath.

GENERAL OFFICERS AND OFFICIAL TITLES.

Isaac W. Stetson,	.	.	.	.	.	<i>President and General Manager.</i>
Clifford J. Hager,	.	.	.	.	.	<i>Clerk and Treasurer.</i>

DIRECTORS AND RESIDENCES.

Isaac W. Stetson,	.	.	.	.	.	North Heath, Mass.
Clifford J. Hager,	.	.	.	.	.	Dell, Mass.
Levi Lively,	.	.	.	.	.	Dell, Mass.
Fred Stone,	.	.	.	.	.	Cyrus, Mass.

CAPITAL.

Capital paid in,	\$310 00
Number of stockholders,	10
Number of stockholders resident in Massachusetts,	10

EARNINGS AND EXPENSES.

Gross earnings:—

Exchange service,	\$640 00
Toll service,	10 00
Miscellaneous earnings,	3 74
Total gross earnings,	\$653 74
Expenses,	492 48
Net earnings,	\$161 26
Dividends,	48 60
Surplus for year,	\$112 66
Miscellaneous charges to surplus,	61 16
Surplus June 30, 1910,	\$51 50

GENERAL BALANCE SHEET.

Assets.

Property accounts,	\$1,100 00
Notes and accounts receivable,	281 63
Supplies on hand,	20 00
Cash on hand,	56 71
Total debits,	\$1,458 34

Liabilities.

Capital stock,	\$810 00
Accounts payable,	331 97
Balance, surplus,	316 37
Total credits,	\$1,458 34

STATISTICAL INFORMATION.

Number of subscribers,	80
Number of instruments,	82
Number of operators,	2
Number of pay stations,	4
Number of subscribers on party lines,	80
Overhead system:—	
Pole line, miles,	21
Iron wire, miles,	59

NOTE. — “Free service was to be given to all of our subscribers to the Heath Telephone Company, when we purchased this territory of them, for like service to us in the town of Charlemont, Mass.”

THE HIGHLAND TELEPHONE COMPANY.

Location of principal business office: Cooleyville, Mass.

Date of organization: May 22, 1907.

Date of incorporation: Aug. 9, 1907.

State in which incorporated: Massachusetts.

Date of annual meeting: first Monday in May.

Date when company began to give service: Sept. 1, 1901.

Service is given by this company over its own lines in the towns of Leverett, New Salem, Prescott and Shutesbury.

GENERAL OFFICERS AND OFFICIAL TITLES.

Willard Putnam,	<i>President.</i>
Rawson King,	<i>Secretary and Treasurer.</i>

DIRECTORS AND RESIDENCES.

Willard Putnam,	Cooleyville, Mass.
Rawson King,	Cooleyville, Mass.
Harriet B. Putnam,	Cooleyville, Mass.

CAPITAL.

Capital paid in,	\$5,000 00
Number of stockholders,	4
Number of stockholders resident in Massachusetts,	4
Amount of notes outstanding,	\$800 00

EARNINGS AND EXPENSES.

Gross earnings:—	
Exchange service,	\$1,828 86
Toll service,	610 85
Miscellaneous earnings,	40 95
Total gross earnings,	\$2,480 66
Expenses,	1,800 91
Net earnings,	\$679 75
Interest payments,	48 00
Net profit,	\$631 75
Dividends,	511 75
Surplus for year,	\$120 00

GENERAL BALANCE SHEET.

Assets.

Property accounts,	\$5,800 00
Notes and accounts receivable,	595 80
Supplies on hand,	35 00
Cash on hand,	123 59
Total debits,	\$6,554 39

Liabilities.

Capital stock,	\$5,000 00
Notes payable,	800 00
Balance, surplus,	754 39
Total credits,	\$6,554 39

STATISTICAL INFORMATION.

Number of subscribers,	148
Number of instruments,	150
Number of operators,	3
Number of pay stations,	12
Number of subscribers on party lines,	148
Overhead system:—	
Pole line, miles,	52
Iron wire, miles,	205

LITTLETON TELEPHONE ASSOCIATION.

Location of principal business office: Littleton, Mass.

Date of organization: April 18, 1904.

Date of annual meeting: first Monday in April.

Date when company began to give service: about Oct. 1, 1904.

Service is given by this company over its own lines in the towns of Harvard, Littleton and Westford.

GENERAL OFFICERS AND OFFICIAL TITLES.

Frank B. Priest,	<i>President.</i>
J. Melvin Hartwell,	<i>Secretary and Treasurer.</i>
Joseph P. Thacher,	<i>Manager.</i>

CAPITAL.

Capital paid in,	\$1,400 00
Number of stockholders,	60
Number of stockholders resident in Massachusetts,	60

EARNINGS AND EXPENSES.

Gross earnings:—	
Exchange service,	\$586 00
Miscellaneous earnings,	50 00
Total gross earnings,	\$636 00
Expenses,	452 10
Surplus for the year,	\$183 90

GENERAL BALANCE SHEET.

Assets.

Property accounts,	\$1,400 00
Notes and accounts receivable,	218 00
Supplies on hand,	16 00
Cash on hand,	6 93
Total debits,	\$1,640 93

Liabilities.

Capital stock,	\$1,400 00
Accounts payable,	61 00
Balance, surplus,	179 93
	<hr/>
Total credits,	\$1,640 93

STATISTICAL INFORMATION.

Number of subscribers,	60
Number of instruments,	60
Number of subscribers on party lines,	60
Overhead system: —	
Pole line, miles,	21.5
Iron wire, miles,	43

NANTUCKET TELEPHONE COMPANY.

Location of principal business office: 26 Pine Street, Nantucket, Mass.

Date of re-organization: May 28, 1896.

Date of incorporation: July 29, 1896.

State in which incorporated: Massachusetts.

Date of annual meeting: first Tuesday in April.

Date when company began to give service: April 18, 1895.

GENERAL OFFICER.

William T. Devlan, *President and Treasurer.*

DIRECTORS AND RESIDENCES.

William T. Devlan,	Nantucket, Mass.
Charles H. Robinson,	Nantucket, Mass.
John S. Grouard,	Nantucket, Mass.
Isaac Hills,	Nantucket, Mass.
Robert K. Appleton,	Nantucket, Mass.

CAPITAL.

Capital paid in,	\$2,500 00
Number of stockholders,	42
Number of stockholders resident in Massachusetts,	42

NOTE. — The company has no property except franchise.

THE NEW ENGLAND TELEPHONE AND TELEGRAPH COMPANY OF MASSACHUSETTS.

Location of principal business office: 119 Milk Street, Boston, Mass.

Date of organization: May 17, 1888.

Date of incorporation: May 17, 1888.

State in which incorporated: Massachusetts.

Date of annual meeting: first Wednesday in April.

GENERAL OFFICERS AND OFFICIAL TITLES.

Jasper N. Keller,	<i>President.</i>
Francis A. Houston,	<i>General Manager.</i>
Edmund S. Willard,	<i>Treasurer.</i>
Edward A. Wilkie,	<i>Clerk.</i>
William J. Denver,	<i>Assistant General Manager.</i>
Carl T. Keller,	<i>Assistant General Manager.</i>
Edmund W. Longley,	<i>Auditor.</i>

DIRECTORS AND RESIDENCES.

Jasper N. Keller,	Surry, N. H.
William J. Denver,	Roxbury, Mass.
Francis A. Houston,	Concord, Mass.
Edmund W. Longley,	Salem, Mass.

CAPITAL.

Capital authorized by certificate of association,	\$25,000 00
Capital authorized by vote of company,	25,000 00
Capital paid in, 250 shares; par value, \$100,	25,000 00

Whole number of stockholders,	5
Number of stockholders resident in Massachusetts,	3
Amount of stock held in Massachusetts (shares),	15
Amount of stock held by parent telephone company (shares),	230

DEBTS.

Bonds or notes issued, viz.: —

DATE.	When due.	How secured.	Rate of Interest (Per Cent.).	Amount.
May 18, 1889,	Demand, .	Real estate mortgage,	4	\$10,000 00
Dec. 31, 1908,	Demand, .	- - - - -	6	411,499 68
Total amount of mortgages and notes,				\$421,499 68
Capital paid in,				25,000 00
Total liability for capital and loans,				\$446,499 68

CONDENSED STATEMENT OF OPERATING FOR THE YEAR.

General expense,	\$2,218 06
Operating expense,	3 75
Total expenses,	\$2,221 81
Miscellaneous income: —	
Real estate revenue,	34,095 39
Total income above expenses,	\$31,873 58
Fixed charges: —	
Interest on floating debt,	25,365 31
Surplus for year ending June 30, 1910,	\$6,508 27

GENERAL BALANCE SHEET.

Assets.

Exchange and toll construction,	\$33,000 00
Real estate not required for operation,	494,859 13
Total plant account,	\$527,859 13
Current assets: —	
Cash on hand,	511 59
Total debits,	\$528,370 72

Liabilities.

Capital stock, common,	\$25,000 00
Real estate mortgages,	10,000 00
Current liabilities: —	
Loans and notes payable,	446,033 16
Accrued liabilities: —	
Interest accrued but not due,	33 33
Total liabilities,	\$481,066 49
Balance, surplus,	47,304 23
Total credits,	\$528,370 72

PROFIT AND LOSS ACCOUNT.

	Dr.	Cr.
Balance from previous year,		\$40,795 96
Real estate revenue,		34,095 39
Operating expenses,	\$2,221 81	
Interest on floating debt,	25,365 31	
Balance, surplus,	47,304 23	
	\$74,891 35	\$74,891 35

PROPERTY ACCOUNTS (ADDITIONS DURING THE YEAR).

Real estate not required for operation,	\$1,384 82
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NOTE. — This is not an operating company.

NORTHFIELD FARMS TELEPHONE COMPANY.

Location of principal business office: Northfield Farms, Mass.

Date when company began to give service: 1902.

Service is given by this company over its own lines in the town of Northfield.

GENERAL OFFICER.

Osgood L. Leach, *Owner and Manager.*

CAPITAL.

Capital paid in,	\$400 00
Number of stockholders,	2
Number of stockholders resident in Massachusetts,	2

EARNINGS AND EXPENSES.

Gross earnings,	\$290 76
Expenses,	143 35
Net earnings,	<u>\$147 41</u>

GENERAL BALANCE SHEET.

Assets.

Property accounts,	\$400 00
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Liabilities.

Capital stock,	\$400 00
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STATISTICAL INFORMATION.

Number of subscribers,	24
Number of instruments,	25
Number of pay stations,	1
Number of subscribers on party lines,	24
Overhead system: —	
Pole line, miles,	8
Iron wire, miles,	8

NOTE. — "Private line, owned by O. L. Leach and Mrs. C. H. Goren."

NORTH ORANGE TELEPHONE COMPANY.

Location of principal business office: North Orange, Mass.

Date when company began to give service: about June 1, 1902.

Service is given by this company over its own lines in the town of Orange.

GENERAL OFFICER.

H. W. Gilmore,	<i>General Manager.</i>
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EARNINGS AND EXPENSES.

Gross earnings,	\$50 30
Expenses,	22 00
Net earnings,	<u>\$28 30</u>
Surplus balance from last year,	71 29
Surplus June 30, 1910,	<u>\$99 59</u>

GENERAL BALANCE SHEET.

Assets.

Property accounts,	\$500 00
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Liabilities.

Capital stock,	\$500 00
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STATISTICAL INFORMATION.

Number of subscribers,	48
Number of instruments,	48
Number of operators,	1
Number of subscribers on party lines,	48
Overhead system: —	
Pole line, miles,	10
Iron wire, miles,	10

NOTE. — "This company was formed by the farmers, simply for convenience among themselves. It is composed of four lines, with a president and treasurer of its own, and each line is independent of the other, connected at the store with a switchboard, also connected with the New England Telephone Company, with Athol as central. They have no revenue, except that the New England Telephone Company allows them 5 cents each for all tolls passing over the lines from the New England Telephone Company's line, which amounts to the entered amount."

OAKHAM AND COLDBROOK SPRINGS TELEPHONE COMPANY.

Location of principal business office: Oakham, Mass.

Date of organization: June 1, 1893.

Date when company began to give service: July 16, 1903.

Service is given by this company over its own lines in the towns of Barre and Oakham.

GENERAL OFFICERS.

Frank S. Conant,	<i>President and General Manager.</i>
Harry B. Parker,	<i>Treasurer.</i>

CAPITAL.

Capital paid in,	\$2,041 18
Number of stockholders,	2
Number of stockholders resident in Massachusetts,	2
Amount of notes outstanding,	\$719 20

EARNINGS AND EXPENSES.

Gross earnings: —	
Exchange service,	\$949 88
Toll service,	323 38
Miscellaneous earnings,	45 21
Total gross earnings,	\$1,323 47
Expenses,	1,009 34
Net earnings,	\$314 13
Interest payments,	12 00
Net profit,	\$302 13
Surplus balance from last year,	98 13
	\$400 26
Miscellaneous charges to surplus,	224 55
Surplus June 30, 1910,	\$175 71

GENERAL BALANCE SHEET.

Assets.

Property accounts,	\$2,806 97
Notes and accounts receivable,	93 26
Supplies on hand,	24 50
Cash on hand,	18 94
Other assets,	47 00

Total debits,	\$2,990 67
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Liabilities.

Capital stock,	\$2,041 18
Notes payable,	719 20
Accounts payable,	33 00
Other liabilities,	21 58
Balance, surplus,	175 71

Total credits,	\$2,990 67
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STATISTICAL INFORMATION.

Number of subscribers,	63
Number of instruments,	70
Number of operators,	3
Number of pay stations,	4
Number of subscribers on party lines,	59
Number of subscribers on single lines,	4
Overhead system: —	
Pole line, miles,	26.5
Iron wire, miles,	77
Copper wire, miles,	2

ORLEANS TELEPHONE COMPANY.

Location of principal business office: Orleans, Mass.

Date when company began to give service: April, 1901.

Service is given by this company over its own lines in the town of Orleans.

GENERAL OFFICER.

Henry K. Cummings,	Owner and Manager.
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EARNINGS AND EXPENSES.

Gross earnings,	\$106 33
Expenses,	2 50

Surplus June 30, 1910,	\$103 83
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GENERAL BALANCE SHEET.

Assets.

Property accounts,	\$200 00
Supplies on hand,	35 00
Balance, deficit,	348 00
<hr/>	
Total debits,	\$583 00

Liabilities.

Capital stock,	\$583 00
<hr/>	
Total credits,	\$583 00

STATISTICAL INFORMATION.

Number of subscribers,	10
Number of instruments,	15
Number of subscribers on party lines,	10
Overhead system: —	
Pole line, miles,	5
Iron wire, miles,	5

E. M. PARTRIDGE.

Location of principal business office: Millers Falls, Mass.

Date when service first given: June 1, 1899.

Service is given by this concern over its own lines in the towns of Erving and Montague.

GENERAL OFFICER.

E. M. Partridge, *Owner.*

EARNINGS AND EXPENSES.

Gross earnings: —	
Exchange service,	\$899 22
Toll service,	3 50
Miscellaneous earnings,	241 59
<hr/>	
Total gross earnings,	\$1,144 31
Expenses,	1,014 57
<hr/>	
Net earnings,	\$129 74

GENERAL BALANCE SHEET.

Assets.

Property accounts,	\$1,073 12
Notes and accounts receivable,	333 75
Supplies on hand,	35 00
Cash on hand,	83 28
<hr/>	
Total debits,	\$1,530 15

Liabilities.

Capital stock,	\$1,073 12
Balance, surplus,	457 03
<hr/>	
Total credits,	\$1,530 15

STATISTICAL INFORMATION.

Number of subscribers,	66
Number of instruments,	71
Number of pay stations,	4
Number of subscribers on party lines,	63
Number of subscribers on single lines,	3
Overhead system: —	
Pole line, miles,	$\frac{1}{2}$
Iron wire, miles,	16
Copper wire, miles,	1

RICHMOND TELEPHONE COMPANY.

Location of principal business office: Richmond; Mass.

Date of organization: Aug. 25, 1903.

Date of incorporation: 1903.

State in which incorporated: Massachusetts.

Date of annual meeting: first Friday after July 1.

Date when company began to give service: 1903.

Service is given by this company over its own lines in the town of Richmond.

GENERAL OFFICERS AND OFFICIAL TITLES.

Frederick A. Clement,	<i>President and General Manager.</i>
Sydney M. Loveland,	<i>Vice-President.</i>
Jesse H. Fairfield, Jr.,	<i>Clerk and Treasurer.</i>

DIRECTORS AND RESIDENCES.

Sydney M. Loveland,	Richmond, Mass.
Amos G. Kiltz,	Richmond, Mass.
Charles H. Nichols,	Richmond, Mass.
James H. Barnes,	Richmond, Mass.
Frederick A. Clement,	Richmond, Mass.

CAPITAL.

Capital paid in,	\$1,610 00
Number of stockholders,	22
Number of stockholders resident in Massachusetts,	19
Amount of stock held in Massachusetts (shares),	19
Amount of notes outstanding,	\$400 00

EARNINGS AND EXPENSES.

Gross earnings:—		
Exchange service,	.	\$898 33
Toll service, .	.	665 86
Total gross earnings, .		\$1,564 19
Expenses, .	.	1,301 71
Net earnings, .		\$262 48
Interest payments, .	.	25 00
Net profit, .		\$237 48
Dividends, .	.	100 00
Surplus for year, .		\$337 48
Surplus balance from last year, .	.	1,240 74
		\$1,578 22
Miscellaneous credits to surplus, .	.	115 11
Surplus, June 30, 1910, .		\$1,693 33

GENERAL BALANCE SHEET.

Assets.

Property accounts, .	.	\$3,584 47
Notes and accounts receivable, .	.	220 86
Supplies on hand, .	.	80 00
Cash on hand, .	.	110 95
Total debits, .		\$3,996 28

Liabilities.

Capital stock, .	.	\$1,610 00
Notes payable, .	.	400 00
Accounts payable, .	.	292 95
Balance, surplus, .	.	1,693 33
Total credits, .		\$3,996 28

STATISTICAL INFORMATION.

Number of subscribers, .	.	62
Number of instruments, .	.	69
Number of operators, .	.	2
Number of pay stations, .	.	2
Number of subscribers on party lines, .	.	60
Number of subscribers on single lines, .	.	2
Overhead system:—		
Pole line, miles, .	.	16
Iron wire, miles, .	.	47

ROWLEY TELEPHONE COMPANY.

Location of principal business office: Rowley, Mass.

Date when company began to give service: Dec. 15, 1898.

Service is given by this company over its own lines in the towns of Ipswich and Rowley.

GENERAL OFFICERS.

Almon E. Carpenter and Albert E. Bailey, Owners.

CAPITAL.

Capital paid in,	\$1,545 67
Amount of notes outstanding,	1,600 00

EARNINGS AND EXPENSES.

Gross earnings: —	
Exchange service,	\$694 35
Toll service,	148 72
Miscellaneous earnings,	30 14
Total gross earnings,	\$873 21
Expenses,	326 29
Net earnings,	\$546 92
Interest payments,	96 00
Net profit,	\$450 92
Dividends,	400 00
Surplus for the year,	\$50 92

GENERAL BALANCE SHEET.

Assets.

Property accounts,	\$2,358 93
Notes and accounts receivable,	367 06
Supplies on hand,	145 00
Cash on hand,	140 71
Balance, deficit,	133 97
Total debits,	\$3,145 67

Liabilities.

Capital stock,	\$1,545 67
Notes payable,	1,600 00
Total credits,	\$3,145 67

STATISTICAL INFORMATION.

Number of subscribers,	47
Number of instruments,	47
Number of operators,	1
Number of pay stations,	4
Number of subscribers on party lines,	44
Number of subscribers on single lines,	3
Overhead system: —	
Pole line, miles,	10
Iron wire, miles,	27

STATE LINE CO-OPERATIVE TELEPHONE COMPANY NO. 7.

Location of principal business office: West Stockbridge, Mass.

Date of organization: Jan. 1, 1902.

Date when company began to give service: Jan. 1, 1902.

Service is given by this company over its own lines in the town of West Stockbridge, and in the State of New York.

GENERAL OFFICERS AND OFFICIAL TITLES.

John Howes,	<i>President.</i>
John P. Smith,	<i>Treasurer.</i>
Charles H. Baldwin,	<i>Secretary.</i>

CAPITAL.

Capital paid in,	\$525 00
Number of stockholders,	15
Number of stockholders resident in Massachusetts,	6
Amount of stock held in Massachusetts,	\$210 00

EARNINGS AND EXPENSES.

Gross earnings,	\$99 25
Expenses,	79 68
Surplus June 30, 1910,	\$19 57

GENERAL BALANCE SHEET.

Assets.

Property accounts,	\$525 00
Supplies on hand,	19 57
Total debits,	\$544 57

Liabilities.

Capital stock,	\$525 00
Balance, surplus,	19 57
Total credits,	\$544 57

STATISTICAL INFORMATION.

Number of subscribers,	15
Number of instruments,	15
Number of operators,	2
Number of pay stations,	2
Number of subscribers on party lines,	15
Overhead system: —	
Pole line, miles,	5
Iron wire, miles,	10

STATE LINE TELEPHONE COMPANY.

Location of principal business office: West Stockbridge, Mass.

Date when company began to give service: April, 1902.

Service is given by this company over its own lines in the town of West Stockbridge.

GENERAL OFFICER.

W. H. Losty, Owner.

CAPITAL.

Capital paid in, \$1,410 00

EARNINGS AND EXPENSES.

Gross earnings: —

Exchange service, \$74 65

Toll service, 20 90

Miscellaneous earnings, 240 00

Total gross earnings, \$335 55

Expenses, 313 50

Surplus for the year, \$22 05

Surplus balance from last year, 5 59

Surplus June 30, 1910, \$87 64

GENERAL BALANCE SHEET.

Assets.

Property accounts, \$1,410 00

Cash on hand, 87 64

Total debits, \$1,497 64

Liabilities.

Capital stock, \$1,410 00

Balance, surplus, 87 64

Total credits, \$1,497 64

STATISTICAL INFORMATION.

Number of subscribers, 18

Number of instruments, 18

Number of pay stations, 2

Number of subscribers on party lines, 18

Overhead system: —

Pole line, miles, 9

Iron wire, miles, 9

NOTE. — "The so-called State Line Telephone Company is not an incorporated body, but is the name given by the New England Telephone Company in their directory to the exchange at West Stockbridge and State Line owned by W. H. Losty."

TAGHCONIC TELEPHONE COMPANY.

Location of principal business office: State Line, Mass.

Date of organization: Dec. 31, 1907.

Date of incorporation: July 1, 1908.

State in which incorporated: Massachusetts.

Date of annual meeting: first Tuesday in December.

Date when company began to give service: Jan. 1, 1909.

Service is given by this company over its own lines in the towns of Alford, Great Barrington and West Stockbridge.

GENERAL OFFICERS AND OFFICIAL TITLES.

Henry C. Kinne,	.	.	.	.	.	.	<i>President and Treasurer.</i>
Edward M. Easland,	.	.	.	.	.	.	<i>Vice-President.</i>
Edward A. Easland,	.	.	.	.	.	.	<i>Clerk.</i>

DIRECTORS AND RESIDENCES.

Henry C. Kinne,	.	.	.	.	.	.	State Line, Mass.
George H. Cobb, Jr.,	.	.	.	.	.	.	Housatonic, Mass.
Charles B. Wilson,	.	.	.	.	.	.	Housatonic, Mass.

CAPITAL.

Capital paid in,	.	.	.	.	.	.	.	\$1,000 00
Number of stockholders,	.	.	.	.	.	.	.	21
Number of stockholders resident in Massachusetts,	.	.	.	.	.	.	.	21

EARNINGS AND EXPENSES.

Gross earnings: —							
Exchange service,	.	.	.	.	.	.	\$278 75
Toll service,	.	.	.	.	.	.	50
Miscellaneous earnings,	.	.	.	.	.	.	6 50
Total gross earnings,	.	.	.	.	.	.	\$285 75
Expenses,	.	.	.	.	.	.	110 76
Net earnings,	.	.	.	.	.	.	\$174 99
Dividends,	.	.	.	.	.	.	70 00
Surplus for the year,	.	.	.	.	.	.	\$104 99
Surplus balance from last year,	.	.	.	.	.	.	197 73
Surplus June 30, 1910,	.	.	.	.	.	.	\$302 72

GENERAL BALANCE SHEET.

Assets.

Property accounts,	.	.	.	.	.	.	\$1,276 98
Accounts receivable,	.	.	.	.	.	.	9 75
Supplies on hand,	.	.	.	.	.	.	3 75
Cash on hand,	.	.	.	.	.	.	63 07
Total debits,	.	.	.	.	.	.	\$1,353 55

Liabilities.

Capital stock,	\$1,000 00
Accounts payable,	50 83
Balance, surplus,	302 72
Total credits,	<u>\$1,353 55</u>

STATISTICAL INFORMATION.

Number of subscribers,	34
Number of instruments,	34
Number of operators,	1
Number of subscribers on party lines,	34
Overhead system: —	
Pole line, miles,	18
Iron wire, miles,	36

WEST STOCKBRIDGE MUTUAL TELEPHONE COMPANY.

Location of principal business office: West Stockbridge, Mass.

Date of organization: Feb. 20, 1904.

Date of incorporation: March 7, 1904.

State in which incorporated: Massachusetts.

Date of annual meeting: second Monday in May.

Date when company began to give service: May 1, 1904.

Service is given by this company over its own lines in the town of West Stockbridge.

GENERAL OFFICERS AND OFFICIAL TITLES.

Cyrus W. Sprague,	<i>President.</i>
William W. Bartlett,	<i>Secretary and Treasurer.</i>

DIRECTORS AND RESIDENCES.

Cyrus W. Sprague,	West Stockbridge, Mass.
Vallas R. Truesdell,	West Stockbridge, Mass.
Charles R. Van Buskirk,	West Stockbridge, Mass.
Charles H. Fuarey,	West Stockbridge, Mass.
James S. Moore,	West Stockbridge, Mass.

CAPITAL.

Capital paid in,	\$1,000 00
Number of stockholders,	12
Number of stockholders resident in Massachusetts,	11
Amount of stock held in Massachusetts,	<u>\$950 00</u>

EARNINGS AND EXPENSES.

Gross earnings: —	
Exchange service,	\$388 67
Toll service,	7 95
Total gross earnings,	<u>\$396 62</u>
Expenses,	<u>205 75</u>
Net earnings,	\$190 87
Dividends,	<u>136 00</u>
Surplus for the year,	<u>\$54 87</u>

GENERAL BALANCE SHEET.

<i>Assets.</i>	
Property accounts,	\$800 00
Supplies on hand,	15 00
Cash on hand,	141 07
Other assets,	150 00
Total debits,	\$1,106 07
<i>Liabilities.</i>	
Capital stock,	\$1,000 00
Balance, surplus,	106 07
Total credits,	\$1,106 07

STATISTICAL INFORMATION.

Number of subscribers,	50
Number of instruments,	51
Number of operators,	2
Number of pay stations,	1
Number of subscribers on party lines,	50
Overhead system:—	
Pole line, miles,	5
Iron wire, miles,	10

TELEGRAPH COMPANIES.

COMMERCIAL CABLE COMPANY.

Location of principal business office: 112 State Street, Boston, Mass.
 Date of organization: March 14, 1906.
 Date of incorporation: March 14, 1906.
 State in which incorporated: Massachusetts.
 Date of annual meeting: February 15.
 Date when company began to give service: April 1, 1906.
 Service is given by this company over its own lines in Boston and Rockport.

GENERAL OFFICERS AND OFFICIAL TITLES.

Clarence H. Mackay,	<i>President.</i>
George G. Ward,	<i>Vice-President.</i>
Edward C. Platt,	<i>Treasurer and Assistant Clerk.</i>
Frederick H. Putt,	<i>Clerk.</i>

DIRECTORS AND RESIDENCES.

Clarence H. Mackay,	Roslyn, Long Island, N. Y.
George G. Ward,	New York, N. Y.
Frederick H. Putt,	Boston, Mass.

CAPITAL.

Capital authorized by charter,	\$10,000 00
Capital authorized by vote of company,	10,000 00
Capital paid in, 100 shares; par value, \$100,	10,000 00
Whole number of stockholders,	4
Number of stockholders resident in Massachusetts,	1
Amount of stock held in Massachusetts (shares),	1

CONDENSED STATEMENT OF OPERATING FOR THE YEAR.

	Items.	Totals.
Gross earnings from operation,		\$28,260 11
General expense,	\$2,180 08	
Operating expense,	30,971 29	
Current repair,	1,844 45	
Rented lines,	4,800 00	
Total expenses,		39,795 82
Net deficit from operation,		\$11,535 71
Miscellaneous income: —		
Bank interest,		163 69
Deficit for year ending June 30, 1910,		\$11,372 02

EARNINGS.

Gross earnings from operation: —	
Cable service,	\$28,260 11
Miscellaneous income: —	
Bank interest,	163 69
Total gross earnings and income,	\$28,423 71

EXPENSES.

General expense: —	
Postage, printing and stationery,	\$627 61
Miscellaneous office expenses,	1,084 74
Insurance,	212 83
Taxes,	254 90
Total general expense,	\$2,180 08
Operating: —	
Superintendence,	\$4,800 00
Wages of operators,	20,381 15
Wages of messengers,	1,373 79
Rent, light and heat,	4,232 10
Advertising and canvassing,	82 00
Incidental,	102 25
Total operating expense,	30,971 29
Current repair: —	
Instruments, batteries and maintenance,	\$1,703 85
Incidental,	140 60
Total current repairs,	1,844 45
Rented lines,	4,800 00
Total of all operating expenses,	\$39,795 82

GENERAL BALANCE SHEET.

<i>Assets.</i>	<i>Items.</i>	<i>Totals.</i>
Real estate at Rockport, — office building and land,	\$4,200 75	
Electrical apparatus, equipment, office furniture, etc.,	6,000 00	
Total plant account,		\$10,200 75
Current assets: —		
Cash on hand,	\$12,931 94	
Notes and accounts receivable,	7,151 28	
Supplies on hand,	500 06	
Total current assets,		20,583 28
Total assets,		\$30,784 03
Balance, deficit,		9,845 69
Total debits,		\$40,629 72
<i>Liabilities.</i>		
Capital stock, common,		\$10,000 00
Current liabilities,		30,629 72
Total credits,		\$40,629 72

PROFIT AND LOSS ACCOUNT.

	<i>Dr.</i>	<i>Cr.</i>
Balance from previous year,		\$1,526 33
Operating expenses,	\$39,795 82	
Gross earnings from operation,		28,260 11
Miscellaneous income,		163 69
Balance, deficit,		9,845 69
	\$39,795 82	\$39,795 82

GENERAL REMARKS AND EXPLANATIONS.

NOTE. — "This company carries on an international telegraph and cable business only, and does not do any intrastate nor interstate business in the United States, its sole business being to send and receive cablegrams between the United States, Canada and Europe."

COMMERCIAL UNION TELEGRAPH COMPANY OF MASSACHUSETTS.

Location of principal business office: 84 State Street, Boston, Mass.

Date of organization: Aug. 3, 1888.

Date of incorporation: Aug. 3, 1888.

State in which incorporated: Massachusetts.

Date of annual meeting: fourth Saturday in July.

Date when company began to give service: Aug. 3, 1888.

Service is given by this company over its own lines in the following cities and towns: —

Adams,	Lawrence,	North Adams,
Athol,	Lenox,	Orange,
Fitchburg,	Leominster,	Pittsfield,
Gardner,	Lowell,	Shelburne,
Greenfield,	Merrimac,	Williamstown.
Haverhill,	Newburyport,	

GENERAL OFFICERS AND OFFICIAL TITLES.

Charles A. Richardson,	. . . . .	<i>President.</i>
Charles P. Bruch,	. . . . .	<i>Vice-President.</i>
Theodore L. Cuyler, Jr.,	. . . . .	<i>Treasurer.</i>
F. G. McGinnis,	. . . . .	<i>Clerk.</i>

DIRECTORS AND RESIDENCES.

Edward J. Nally,	. . . . .	New York, N. Y.
Charles P. Bruch,	. . . . .	New York, N. Y.
Charles A. Richardson,	. . . . .	Boston, Mass.

CAPITAL.

Capital authorized by charter,	. . . . .	\$10,000 00
Capital authorized by vote of company,	. . . . .	10,000 00
Capital paid in, 100 shares; par value, \$100,	. . . . .	10,000 00
Whole number of stockholders,	. . . . .	4
Number of stockholders resident in Massachusetts,	. . . . .	1
Amount of stock held in Massachusetts (shares),	. . . . .	1

CONDENSED STATEMENT OF OPERATING FOR THE YEAR (WHOLE SYSTEM)..

	Items.	Totals.
Gross earnings from operation, ¹	. . . . .	\$43,083 19
General expense,	\$6,449 60	
Operating expense,	21,793 43	
Current repair,	10,998 91	
Rented lines,	176 22	
Total expenses,	<hr/>	<hr/> 39,418 16
Surplus for year ending June 30, 1910,	\$3,665 03

EARNINGS (WHOLE SYSTEM).

Gross earnings from operation,	\$43,083 19
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EXPENSES (WHOLE SYSTEM).

General expense:—		
Salaries of officers,	\$1,982 75
Postage, printing and stationery,	582 04
Miscellaneous office expenses,	. . . . .	491 87
Damages,	. . . . .	90 07
Legal,	. . . . .	157 50
Rent of right of way,	. . . . .	699 14
Rent of land and buildings,	. . . . .	2,203 44
Taxes,	. . . . .	242 79
Total general expenses,	. . . . .<hr/>	<hr/>\$6,449 60
Amount carried forward,	. . . . .	\$6,449 60

¹ Gross earnings in Massachusetts, \$4,626.02.

	Items.	Totals.
<i>Amount brought forward,</i>		\$6,449 60
Operating:—		
Wages of operators and others,	\$17,290 87	
Wages of messengers,	3,574 47	
Rent, light and heat,	308 54	
Incidental,	619 55	
Total operating expenses,		21,793 43
Current repair:—		
Repairs, overhead lines,	\$10,871 80	
Repairs, underground lines,	22 27	
Repairs, call circuits,	104 84	
Total current repairs,		10,998 91
Rented lines,		176 22
Total of all operating expenses,		\$39,418 16

GENERAL BALANCE SHEET.

<i>Assets.</i>		
Plant required for operation,		\$10,000 00
Current assets:—		
Cash on hand,	\$4,198 97	
Notes and accounts receivable,	1,369 47	
Supplies on hand,	221 52	
Total current assets,		5,789 96
Balance, deficit,		5,306 94
Total debits,		\$21,096 90

<i>Liabilities.</i>		
Capital stock, common,		\$10,000 00
Current liabilities:—		
Accounts payable,	\$7,396 34	
Traffic accounts,	3,700 56	
Total current liabilities,		11,096 90
Total credits,		\$21,096 90

PROFIT AND LOSS ACCOUNT.

	Dr.	Cr.
Balance from previous year,	\$8,971 97	
Operating expenses,	39,418 16	
Gross earnings from operation,		\$43,083 19
Balance, deficit,		5,306 94
	\$48,390 13	\$48,390 13

THE MARTHAS VINEYARD TELEGRAPH COMPANY.

Location of principal business office: Woods Hole, Mass.

Date of organization: July 16, 1900.

Date of incorporation: July 20, 1900.

State in which incorporated: Massachusetts.

Date of annual meeting: January 17.

Date when company began to give service: Oct. 1, 1900.

Service is given by this company over its own lines in the following towns:—

Edgartown,
Falmouth,Gosnold,
Nantucket,Oak Bluffs,
Tisbury.

GENERAL OFFICERS AND OFFICIAL TITLES.

Henry G. Haddon, *President and General
Manager.*Joseph H. Wentworth, *Clerk and Treasurer.*

DIRECTORS AND RESIDENCES.

Frederick E. Clary, New Haven, Conn.

Arthur L. Edgecomb, Cambridge, Mass.

Henry G. Haddon, Woods Hole, Mass.

CAPITAL.

Capital authorized by charter, \$10,000 00

Capital authorized by vote of company, 10,000 00

Capital paid in, 100 shares; par value, \$100, 10,000 00

Whole number of stockholders, 2

Number of stockholders resident in Massachusetts, None.

CONDENSED STATEMENT OF OPERATING FOR THE YEAR.

	Items.	Totals.
Gross earnings from operation,		\$11,405 37
Less rebates and discounts,		41 12
Revenue from operation,		\$11,364 25
General expense,	\$1,872 63	
Operating expense,	3,162 87	
Current repair,	1,940 35	
Total expenses,		6,975 85
Net revenue from operation,		\$4,388 40
Miscellaneous income:—		
Interest on deposits,	\$31 96	
Other miscellaneous income,	399 26	
Total miscellaneous income,		431 22
Total income above expenses,		\$4,819 62
Fixed charges:—		
Interest on floating debt,		150 00
Surplus of net income above fixed charges,		\$4,669 62
Dividends declared on stock,		500 00
Surplus for year ending June 30, 1910,		\$4,169 62

EARNINGS.		
	Items.	Totals.
Gross earnings from operation: —		
Telegraph service,	\$11,302 76	
Money transfers,	52 48	
Messenger service,	44 15	
Pole rental,	5 98	
		\$11,405 37
Less rebates and discounts,		41 12
		\$11,364 25
Total gross earnings from operation,		
Miscellaneous income: —		
Interest on deposits,	\$31 96	
Received for damages to cable,	358 35	
Other miscellaneous income,	40 91	
Total miscellaneous income,		431 22
Total gross earnings and income,		\$11,795 47

EXPENSES.		
General expense: —		
Salaries of officers,	\$1,300 00	
Postage, printing and stationery,	66 61	
Miscellaneous office expenses,	179 93	
Travelling,	103 00	
Rent of right of way,	25 00	
Insurance,	6 59	
Taxes,	191 50	
Total general expense,		\$1,872 63
Operating: —		
Wages of operators,	\$3,234 68	
Wages of messengers,	342 16	
Telephone charges,	168 91	
Rent, light and heat,	375 87	
Incidental,	276 59	
		\$4,398 21
Less proportion of expense for handling Western		
Union and Postal business,	1,235 34	
Total operating expense,		\$3,162 87
Current repair: —		
Repairs, overhead lines,	\$602 29	
Repairs, submarine lines,	1,135 55	
Repairs, instruments and batteries,	85 32	
Incidental,	117 19	
Total current repairs,		1,940 35
Total of all operating expenses,		\$6,975 85

GENERAL BALANCE SHEET.

Assets.		
Overhead lines,	\$4,000 00	
Submarine lines,	5,000 00	
Equipment,	668 50	
Office furniture and fixtures,	331 50	
Total plant account,		\$10,000 00
Amount carried forward,		\$10,000 00

	Items.	Totals.
<i>Amount brought forward,</i>		\$10,000 00
Current assets:—		
Cash on hand,	\$903 89	
Notes and accounts receivable,	1,393 72	
Total current assets,		2,297 61
Total debits,		\$12,297 61
<i>Liabilities.</i>		
Capital stock, common,		\$10,000 00
Balance, surplus,		2,297 61
Total credits,		\$12,297 61

PROFIT AND LOSS ACCOUNT.

	Dr.	Cr.
Balance from previous year,	\$1,872 01	
Gross earnings from operation,		\$11,405 37
Miscellaneous income,		431 22
Operating expenses,	6,975 85	
Rebates and discounts,	41 12	
Interest on floating debt,	150 00	
Dividends declared on stock,	500 00	
Balance, surplus,	2,297 61	
	\$11,836 59	\$11,836 59

NEW ENGLAND TELEGRAPH COMPANY OF MASSACHUSETTS.

Location of principal business office: 84 State Street, Boston, Mass.

Date of organization: April 7, 1884.

Date of incorporation: April 7, 1884.

State in which incorporated: Massachusetts.

Date of annual meeting: second Tuesday in August.

Date when company began to give service: April 7, 1884.

Service is given by this company over its own lines in Attleborough, Brockton, Gloucester, Rockport and Salem.

GENERAL OFFICERS AND OFFICIAL TITLES.

Charles C. Adams,	<i>President.</i>
Charles P. Bruch,	<i>Vice-President.</i>
Theodore L. Cuyler, Jr.,	<i>Treasurer.</i>
J. H. Wentworth,	<i>Clerk and Transfer Agent.</i>

DIRECTORS AND RESIDENCES.

Charles C. Adams,	New York, N. Y.
Charles P. Bruch,	New York, N. Y.
Arthur L. Edgecomb,	Boston, Mass.

CAPITAL.

Capital authorized by charter,	\$30,000 00
Capital authorized by vote of company,	30,000 00
Capital paid in, 300 shares; par value, \$100,	30,000 00
Whole number of stockholders,	1
Number of stockholders resident in Massachusetts,	None.

CONDENSED STATEMENT OF OPERATING FOR THE YEAR.

	Items.	Totals.
Gross earnings from operation, ¹		\$16,771 97
General expense,	\$2,029 32	
Operating expense,	7,232 79	
Current repair,	1,695 39	
Total expenses,		10,957 50
Surplus for year ending June 30, 1910,		\$5,814 47

EARNINGS (WHOLE SYSTEM).

Gross earnings from operation,	\$16,771 97
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EXPENSES (WHOLE SYSTEM).

General expense: —	
Salaries of officers,	\$1,028 93
Postage, printing and stationery,	226 83
Miscellaneous office expenses,	139 54
Rent of right of way,	133 04
Rent of land and buildings,	450 00
Taxes,	50 98
Total general expense,	\$2,029 32
Operating: —	
Wages of operators and others,	\$6,752 30
Wages of messengers,	351 30
Rent, light and heat,	37 97
Advertising and canvassing,	39
Incidental,	90 83
Total operating expense,	7,232 79
Current repair: —	
Repairs, overhead and underground lines,	1,695 39
Total of all operating expenses,	\$10,957 50

GENERAL BALANCE SHEET.

Assets.

Plant required for operation,	\$30,000 00
Current assets: —	
Cash on hand,	\$2,318 62
Notes and accounts receivable,	401 00
Supplies on hand,	2 59
Total current assets,	2,722 21
Balance, deficit,	1,278 02
Total assets,	\$34,000 23

¹ Gross earnings from operation in Massachusetts, \$965.79.

<i>Liabilities.</i>	<i>Items.</i>	<i>Totals.</i>
Capital stock, common,		\$30,000 00
Current liabilities: —		
Accounts payable,	\$2,076 70	
Traffic accounts,	1,923 53	
Total current liabilities,		4,000 23
Total liabilities,		\$34,000 23

PROFIT AND LOSS ACCOUNT.

	<i>Dr.</i>	<i>Cr.</i>
Balance from previous year,	\$7,092 49	
Operating expenses,	10,957 50	
Gross earnings from operation,		\$16,771 97
Balance, deficit,		1,278 02
	\$18,049 99	\$18,049 99

OCEAN TELEGRAPH COMPANY.

Date of organization: June 28, 1869.

Date of incorporation: incorporated by chapter 129, Acts of 1869.

State in which incorporated: Massachusetts.

Date of annual meeting: whenever all the stockholders shall in writing consent thereto.

GENERAL OFFICERS AND OFFICIAL TITLES.

Philip Dexter,	<i>President.</i>
Robert H. Gardiner,	<i>Treasurer.</i>
Alfred J. Mayo,	<i>Clerk.</i>

DIRECTORS AND RESIDENCES.

Philip Dexter,	Boston, Mass.
Robert H. Gardiner,	Gardiner, Me.
Robert H. Gardiner, Jr.,	Gardiner, Me.

CAPITAL.

Capital authorized by charter,	\$100,000 00
Capital authorized by vote of company,	25,000 00
Capital paid in, 250 shares; par value, \$100,	25,000 00

Whole number of stockholders,	4
Number of stockholders resident in Massachusetts,	2
Amount of stock held in Massachusetts (shares),	64

NOTE. — "The only property of the company is a parcel of land at Duxbury and a short piece of cable from thence to the sea."

This is not an operating company.

POSTAL TELEGRAPH CABLE COMPANY OF MASSACHUSETTS.

Location of principal business office: 84 State Street, Boston, Mass.

Date of organization: April 3, 1896.

Date of incorporation: April 3, 1896.

State in which incorporated: Massachusetts.

Date of annual meeting: fourth Saturday in July.

Date when company began to give service: April 3, 1896.

Service is given by this company over its own lines in the following cities and towns:—

Amherst,	Falmouth,	Northampton,
Attleborough,	Foxborough,	Springfield,
Brookline,	Frammingham,	Sturbridge,
Cambridge,	Holyoke,	Taunton,
Charlton,	Lynn,	Westfield,
Chelsea,	Malden,	Woburn,
Chicopee,	Manchester,	Worcester.
Danvers,	Natick,	
Fall River,	New Bedford,	

GENERAL OFFICERS AND OFFICIAL TITLES.

Arthur L. Edgecomb,	.	.	.	.	.	<i>President.</i>
Edward B. Pillsbury,	.	.	.	.	.	<i>Vice-President.</i>
Theodore L. Cuyler, Jr.,	.	.	.	.	.	<i>Treasurer.</i>
Charles A. Richardson,	.	.	.	.	.	<i>Clerk and Transfer Agent.</i>

DIRECTORS AND RESIDENCES.

Edward J. Nally,	.	.	.	.	.	New York, N. Y.
Charles P. Bruch,	.	.	.	.	.	New York, N. Y.
Arthur L. Edgecomb,	.	.	.	.	.	Boston, Mass.

CAPITAL.

Capital authorized by charter,	.	.	.	.	.	.	\$5,000 00
Capital authorized by vote of company,	.	.	.	.	.	.	5,000 00
Capital paid in, 50 shares; par value, \$100,	.	.	.	.	.	.	5,000 00

Whole number of stockholders,	.	.	.	.	.	.	1
Number of stockholders resident in Massachusetts,	.	.	.	.	.	.	None.

CONDENSED STATEMENT OF OPERATING FOR THE YEAR (WHOLE SYSTEM).

	Items.	Totals.
Gross earnings from operation, ¹	.	\$326,887 19
General expense,	\$50,862 24	
Operating expense,	246,204 86	
Current repair,	39,463 40	
Total expenses,		336,530 50
Deficit for year ending June 30, 1910,		\$9,643 31

EARNINGS (WHOLE SYSTEM).

Gross earnings from operation,	\$326,887 19
--------------------------------	---	---	---	---	---	---	--------------

¹ Gross earnings from operation in Massachusetts, \$26,207.23.

EXPENSES (WHOLE SYSTEM).

	Items.	Totals.
General expense: —		
Salaries of officers,	\$3,393 53	
Postage, printing and stationery,	6,700 18	
Damages,	2,421 08	
Legal,	1,397 28	
Rent of right of way,	450 02	
Rent of land and buildings,	34,612 28	
Insurance,	242 04	
Taxes,	1,645 83	
Total general expense,		\$50,862 24
Operating: —		
Wages of operators and others,	\$173,029 97	
Wages of messengers,	57,908 53	
Light and heat,	5,385 48	
Advertising and canvassing,	66 29	
Incidental,	9,814 59	
Total operating expense,		246,204 86
Current repair: —		
Repairs overhead lines,	\$37,692 85	
Repairs underground lines,	762 78	
Repairs call circuits,	1,007 77	
Total current repairs,		39,463 40
Total of all operating expenses,		\$336,530 50

GENERAL BALANCE SHEET.

Assets.

Plant required for operation,	\$5,000 00
Current assets: —	
Cash on hand,	\$8,289 02
Notes and accounts receivable,	30,955 87
Supplies on hand,	541 75
Total current assets,	39,786 64
Balance, deficit,	10,308 46
Total debits,	\$55,095 10

Liabilities.

Capital stock, common,	\$5,000 00
Current liabilities: —	
Accounts payable,	50,095 10
Total credits,	\$55,095 10

PROFIT AND LOSS ACCOUNT.

	Dr.	Cr.
Balance from previous year,	\$665 15	
Operating expenses,	336,530 50	
Gross earnings from operation,		\$326,887 19
Balance, deficit,		10,308 46
	\$337,195 65	\$337,195 65

TELEPOST COMPANY OF MASSACHUSETTS.

Location of principal business office: 32 Causeway Street, Boston, Mass.

Date of organization: Feb. 10, 1909.

Date of incorporation: Feb. 10, 1909.

State in which incorporated: Massachusetts.

Date of annual meeting: second Tuesday in February.

Date when company began to give service: July 1, 1909.

Service is given by this company over its own lines in Boston.

GENERAL OFFICERS AND OFFICIAL TITLES.

Harvey Lee Sellers,	<i>President.</i>
Robert Henry Sellers,	<i>Secretary and Treasurer.</i>
Norman J. MacGaffin,	<i>Clerk.</i>

DIRECTORS AND RESIDENCES.

Harvey Lee Sellers,	Montclair, N. J.
Robert Henry Sellers,	Montclair, N. J.
Thomas Conyngton,	Upper Montclair, N. J.

CAPITAL.

Capital authorized by charter,	\$10,000 00
Capital authorized by vote of company,	10,000 00
Capital paid in, 100 shares; par value \$100,	10,000 00

Whole number of stockholders,	3
Number of stockholders resident in Massachusetts,	None.
Amount of stock held by parent telephone company (shares),	98

CONDENSED STATEMENT OF OPERATING FOR THE YEAR.

	Items.	Totals.
Gross earnings from operation,		\$2,620 38
General expense,	\$539 74	
Operating expense,	3,140 13	
Current repair,	329 38	
Total expenses,		4,009 25
Deficit for year ending June 30, 1910,		\$1,388 87

EARNINGS AND EXPENSES.

Gross earnings:—		
Telegraph service,		\$2,620 38
General expense:—		
Wages of clerks,	\$140 69	
Postage, printing, stationery and miscellaneous		
office expenses,	207 55	
Travelling,	18 00	
Taxes,	173 50	
Total general expense,		\$539 74
Amount carried forward,		\$539 74

	Items.	Totals.
<i>Amount brought forward,</i>		\$539 74
Operating:—		
Superintendence,	\$404 38	
Wages of operators,	1,568 81	
Wages of messengers,	334 42	
Telephone charges,	66 58	
Rent, light and heat,	763 52	
Advertising and canvassing,	2 42	
Total operating expense,		3,140 13
Current repair:—		
Repairs, overhead lines,		329 38
Total of all operating expenses,		\$4,009 25

GENERAL BALANCE SHEET.

<i>Assets.</i>		
Overhead lines,	\$100 00	
Underground lines,	3,210 60	
Office furniture and fixtures,	275 85	
Total plant account,		\$3,586 45
Current assets:—		
Cash on hand,	\$190 63	
Notes and accounts receivable,	4,834 05	
Total current assets,		5,024 68
Total assets,		\$8,611 13
Balance, deficit,		1,388 87
Total debits,		\$10,000 00
<i>Liabilities.</i>		
Capital stock, common,		\$10,000 00

PROFIT AND LOSS ACCOUNT.

	Dr.	Cr.
Operating expenses,	\$4,009 25	
Gross earnings from operation,		\$2,620 38
Balance, deficit,		1,388 87
	\$4,009 25	\$4,009 25

NOTE. — "The Telepost Company of Massachusetts does not lease any lines, but it does operate that portion of the Atlantic Telegraph Company's lines in the State of Massachusetts, 51 miles in length, from the Charles River dam bridge on the Cambridge side to the State line near Rosemont.

"Under the agreement with the Telepost Company, Maine, the lessee of the lines of the Atlantic Telegraph Company, the Telepost Company of Massachusetts maintains the lines and operates the same within the State, but does not pay any rental therefor."

UNITED TELEGRAM COMPANY.

Location of principal business office: 26 Congress Square, Boston, Mass.

Date of organization: June, 1890.

Date of incorporation: June 16, 1890.

State in which incorporated: New Jersey.

Date of annual meeting: first Wednesday in November.

Date when company began to give service: June, 1890.

Service is given by this company over its own lines in the city of Boston.

GENERAL OFFICERS AND OFFICIAL TITLES.

Charles F. Parker,	<i>President.</i>
L. Wallace Sweetser,	<i>Secretary and Treasurer.</i>
G. L. Ellwood,	<i>Assistant Treasurer.</i>
Walter L. Sanborn,	<i>Vice-President.</i>

DIRECTORS AND RESIDENCES.

Charles F. Parker,	Boston, Mass.
Walter L. Sanborn,	Newton, Mass.
L. Wallace Sweetser,	Wakefield, Mass.
Stuart F. Martin,	Jamaica Plain, Mass.
Carl C. Lane,	Quincy, Mass.
Walter E. Severance,	Dorchester, Mass.
Lewis C. Harris,	Newark, N. J.

CAPITAL.

Capital authorized by charter,	\$500,000 00
Capital authorized by vote of company,	50,000 00
Capital paid in, 10,000 shares; par value, \$5,	50,000 00

Whole number of stockholders,	78
Number of stockholders resident in Massachusetts,	32
Amount of stock held in Massachusetts (shares),	6,269

DEBTS.

Bonds or notes issued, viz.: —

DATE.	When due.	How secured.	Rate of Interest (Per Cent.).	Amount.
July 1, 1890, .	July 1, 1920, .	Income bonds,	5	\$200,000 00
Total amount of bonds and notes,				\$200,000 00
Capital paid in,				50,000 00
Total liability for capital and loans,				\$250,000 00

CONDENSED STATEMENT OF OPERATING FOR THE YEAR.

	Items.	Totals.
Gross earnings from operation,		\$44,957 75
General expense,	\$14,760 65	
Operating expense,	10,757 13	
Current repair,	3,660 00	
Rented lines,	15,500 04	
Total expenses,		44,677 82
Net revenue from operation,		\$279 93
Miscellaneous income:—		
Sale of old tickers,	\$1,231 84	
Moving equipment for Boston Stock Exchange,	2,500 00	
Total miscellaneous income,		3,731 84
Surplus for year ending June 30, 1910,		\$4,011 77

EARNINGS.

Gross earnings from operation:—		
Stocks and markets,		\$44,957 75
Miscellaneous income:—		
Sale of old tickers,	\$1,231 84	
Moving equipment for Boston Stock Exchange,	2,500 00	
Total miscellaneous income,		3,731 84
Total gross earnings and income,		\$48,689 59

EXPENSES.

General expense:—		
Salaries of officers,	\$5,000 04	
Wages of clerks,	3,198 00	
Postage, printing and stationery,	1,259 85	
Storeroom expenses,	63 50	
Legal,	177 00	
Rent of land and buildings,	1,583 34	
Insurance,	60 00	
Taxes,	542 51	
General expense,	2,876 41	
Total general expense,		\$14,760 65
Operating:—		
Superintendence,	\$1,900 00	
Wages of operators,	5,210 50	
Wages of others,	1,534 22	
Wages of messengers,	12 00	
Telephone charges,	108 38	
Light and power,	559 79	
Incidental,	1,432 29	
Total operating expense,		10,757 13
Current repair:—		
Repairs overhead lines,	\$450 00	
Repairs underground lines,	450 00	
Repairs, instruments,	2,760 00	
Total current repairs,		3,660 00
Rented lines,		15,500 04
Total of all operating expenses,		\$44,677 82

GENERAL BALANCE SHEET.

<i>Assets.</i>	<i>Items.</i>	<i>Totals.</i>
Equipment,	\$9,195 00	
Tickers,	19,897 21	
Franchise,	80,000 00	
Ticker rights,	108,421 91	
Total plant account,		\$217,514 16
Current assets: —		
Cash on hand,		5,395 73
Sinking and other special funds: —		
Funds in escrow,		30,000 00
Total debits,		\$252,909 89
<i>Liabilities.</i>		
Capital stock, common,		\$50,000 00
Bonded debt,		200,000 00
Current liabilities: —		
Dividends not called for,		537 50
Total liabilities,		\$250,537 50
Balance, surplus,		2,372 39
Total credits,		\$252,909 89

PROFIT AND LOSS ACCOUNT.

	<i>Dr.</i>	<i>Cr.</i>
Balance from previous year,		\$4,899 96
Gross earnings from operation,		44,957 75
Miscellaneous income,		3,731 84
Operating expenses,	\$44,677 82	
Ticker rights,	6,539 34	
Balance, surplus,	2,372 39	
	\$53,589 55	\$53,589 55

PROPERTY ACCOUNT (DEDUCTIONS DURING THE YEAR).

Ticker rights,	\$6,539 34
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THE WESTERN UNION TELEGRAPH COMPANY.

Location of principal business office: 195 Broadway, New York, N. Y.

Date of organization: April 1, 1851.

Date of incorporation: April 1, 1851.

State in which incorporated: New York.

Date of annual meeting: second Wednesday in October.

Date when company began to give service: April, 1851.

GENERAL OFFICERS AND OFFICIAL TITLES.

Robert C. Clowry,	<i>President.</i>
J. B. Van Every,	<i>Vice-President.</i>
Thomas F. Clark,	<i>Vice-President.</i>
G. W. E. Atkins,	<i>Vice-President.</i>

J. C. Willever,	<i>Secretary.</i>
F. J. Scherrer,	<i>Assistant Secretary.</i>
A. R. Brewer,	<i>Treasurer.</i>
Lewis Dreadner,	<i>Assistant Treasurer.</i>
E. Y. Gallaher,	<i>Auditor.</i>
H. W. Ladd,	<i>Assistant Auditor.</i>
John F. Dillon,	<i>General Counsel.</i>
G. H. Fearons,	<i>General Attorney.</i>
Rush Taggart,	<i>Solicitor.</i>
H. D. Estabrook,	<i>Solicitor.</i>
F. N. Whitney,	<i>Tax Attorney.</i>
A. G. Saylor,	<i>General Superintendent, Eastern Division, New York, N.Y.</i>
C. F. Ames,	<i>District Superintendent, Boston, Mass.</i>

DIRECTORS.

Robert C. Clowry,	Henry Walters,
George J. Gould,	Joseph J. Slocum,
Edwin Gould,	Paul Morton,
Charles Lanier,	Robert M. Galloway.
J. Pierpont Morgan,	Edward T. Jeffery,
Chauncey M. Depew,	Theo. N. Vail,
Henry M. Flagler,	Henry S. Howe,
John Jacob Astor,	John I. Waterbury,
Oliver Ames,	Robert Winsor,
Jacob H. Schiff,	Henry P. Davison,
James Stillman,	William H. Moore,
John J. Mitchell,	Robert S. Lovett,
Henry A. Bishop,	Edward J. Hall,
Harris C. Fahnestock,	Union N. Bethell,
Thomas H. Hubbard,	Harry B. Thayer.

CAPITAL.

Capital authorized by charter,	\$100,000,000 00
Capital authorized by vote of company,	100,000,000 00
Capital paid in, 998,171 shares; par value, \$100,	99,817,100 00
Whole number of stockholders,	12,870

DEBTS.

Bonds or notes issued, viz.:—

DATE.	When due.	How secured.	Rate of Interest (Per Cent.).	Amount.
Sundry dates since 1900, .	May 1, 1950,	Funding and real estate mortgage.	4½	\$20,000,000 00
Sundry dates since 1888, .	Jan. 1, 1938,	Collateral trust (issued, \$8,645,000; in company's treasury, \$30,000).	5	8,615,000 00
Sundry dates since 1906,	Nov. 1, 1936,	Stocks of other companies, etc. (issued, \$10,000,000; in company's treasury, \$2,000,000).	4	8,000,000 00
Total amount of bonds and notes,				\$36,615,000 00
Capital paid in,				99,817,100 00
Total liability for capital and loans,				\$136,432,100 00

CONDENSED STATEMENT OF OPERATING FOR THE YEAR (WHOLE SYSTEM).

	Items.	Totals.
Gross earnings from operation, ¹	\$31,788,246 38	
Less rebates and discounts,	897,976 76	
Revenue from operation,		\$30,890,269 62
General expense,	\$15,743,340 17	
Operating expense,	3,079,836 33	
Current repair,	3,047,701 14	
Reconstruction,	2,226,739 11	
Deferred maintenance,	8,183 64	
Royalties and rented lines,	1,552,251 08	
Total expenses,		25,658,051 47
Net revenue from operation,		\$5,232,218 15
Miscellaneous income:—		
Real estate revenue,	\$1,135,091 80	
Income from securities,		
Other miscellaneous income,		965,864 75
Total miscellaneous income,		2,100,956 55
Total income above expenses,		\$7,333,174 70
Fixed charges:—		
Interest on funded debt,	\$1,687 829 73	
Interest on floating debt,	58,274 65	
Total fixed charges,		1,746,104 38
Surplus of net income above fixed charges,		\$5,587,070 32
Dividends paid,		2,989,696 50
Surplus for year ending June 30, 1910,		\$2,597,373 82

EARNINGS (WHOLE SYSTEM).

Gross earnings from operation:—	
Telegraph service,	\$24,317,261 93
Cable service,	1,022,024 63
Stocks and markets,	1,562,679 90
Money transfer, premiums and tolls,	409,921 15
Leased wires,	2,531,677 05
Press,	1,707,491 53
Time service,	229,819 35
Election returns,	7,370 84
	\$31,788,246 38
Less rebates and discounts,	897,976 76
Total gross earnings from operation,	\$30,890,269 62
Miscellaneous income:—	
Real estate revenue,	\$1,135,091 80
Dividends on stocks of other companies,	
Interest on bonds and notes of other companies,	
Other miscellaneous income,	965,864 75
Total miscellaneous income,	2,100,956 55
Total gross earnings and income,	\$32,991,226 17

¹ Gross earnings from operation in Massachusetts, \$76,089.08.

EXPENSES (WHOLE SYSTEM).

General expense:—	Items.	Totals.
Salaries of officers and wages of clerks, operators and others,	\$11,185,527 95	
Postage, printing and stationery,	370,109 82	
Miscellaneous expenses and taxes,	1,734,382 63	
Damages,	153,493 23	
Legal,	177,801 61	
Rent of right of way paid railroad companies,	1,106,308 37	
Rent of buildings and offices,	1,015,716 56	
Total general expense,		\$15,743,340 17
Operating:—		
Superintendence,	\$294,650 89	
Messenger services,	2,270,869 08	
Telephone charges,	99,240 76	
Light and heat,	208,757 83	
Obtaining stock and commercial news reports,	206,317 77	
Total operating expense,		3,079,836 33
Current repair:—		
Repair to overhead and underground lines,	\$2,007,404 10	
Repairs, submarine lines,	258,823 50	
New instruments and batteries, and repairs:—		
Instruments,	172,155 06	
Batteries,	446,876 12	
Office repairs and furniture,	162,442 36	
Total current repairs,		3,047,701 14
Royalties and rented lines,		1,552,251 08
<hr/>		
Total expenses, not including charges for reconstruction and deferred repairs,		\$23,423,128 72
Reconstruction items charged to expense,		2,226,739 11
Deferred maintenance items charged to expense:—		
Depreciation of patents,		8,183 64
<hr/>		
Total of all operating expenses,		\$25,658,051 47

GENERAL BALANCE SHEET.

Assets.

Property account:—

Telegraph lines and equipment, based on an approximate appraisal of its replacement cost, new and including properties controlled by stock ownership or held under perpetual leases and merged in the Western Union System,			\$127,978,617 82	
Real estate,			5,908,445 58	
Patents,			102,108 57	
Amount recoverable on the expiration of long term lease in respect of obligations assumed thereunder,			1,180,000 00	
				<hr/>
				\$135,169,171 97
<hr/>				
Amount carried forward,				\$135,169,171 97

	Items.	Totals.
<i>Amount brought forward,</i>		\$135,169,171 97
Other securities owned:—		
Stock of telegraph, cable and other allied companies operated under term leases (not including securities held as lessee, amounting to a par value of \$2,280,292),	\$4,699,623 19	
Stock of telegraph, cable and other allied companies not leased,	4,478,678 08	
Miscellaneous investments,	355,338 74	
Purchase money, notes and obligations,	20,500,000 00	
		30,033,640 01
Inventories of material and supplies,		2,752,089 54
Current assets:—		
Bills and accounts receivable, including managers' and superintendents' balances, etc. (less reserve for doubtful accounts),	\$3,198,119 21	
Treasurer's balances, including cash at banks at New York and outside depositories and in transit,	1,415,069 37	
		4,613,188 58
Total,		\$172,568,090 10
<i>Liabilities.</i>		
Capital stock issued,	\$99,817,100 00	
Less held in treasury,	30,131 51	
		\$99,786,968 49
Capital stock of subsidiary companies not owned by the Western Union Telegraph Company (par value):—		
Companies controlled by perpetual leases,	\$3,448,025 00	
Companies controlled by stock ownership,	458,100 00	
		3,906,125 00
Funded debt:—		
Bonds of the Western Union Telegraph Company:—		
4½ per cent. funding and real estate mortgage fifty-year gold bonds, 1950,	\$20,000,000 00	
Convertible 4 per cent. redeemable gold bonds, 1936, \$10,000,000 00		
Less held in treasury,	2,000,000 00	
		8,000,000 00
Collateral 5 per cent. trust bonds, 1936,	\$8,645,000 00	
Less held in treasury,	30,000 00	
		8,615,000 00
Bonds of subsidiary companies assumed or guaranteed by the Western Union Telegraph Company,		
	\$7,000,000 00	
Less held in treasury,	3,043,000 00	
		3,957,000 00
		40,572,000 00
Total capital liabilities,		\$144,265,093 49
<i>Amount carried forward,</i>		\$144,265,093 49

	Items.	Totals.
<i>Amount brought forward,</i>		\$144,265,093 49
Temporary loan secured by deposit of treasury bonds,		1,500,000 00
Current liabilities:—		
Accounts payable,	\$2,179,687 70	
Accrued taxes (estimated),	850,000 00	
Interest and guaranteed dividends accrued on bonds and stocks of subsidiary companies,	368,953 61	
Unpaid dividends (including dividend of \$747,- 531.75 payable July 15, 1910),	787,761 48	
		4,186,402 79
Deferred noninterest-bearing liabilities, in respect of proceeds of sales of securities and other properties held under leases, for terms expiring in 1931, from lessee companies in which the Western Union Telegraph Company has a controlling interest, payable only on the determination of the leases,		12,382,901 30
Reserves:—		
For maintenance of cables,	\$2,000,000 00	
For contingencies,	500,000 00	
		2,500,000 00
Surplus:—		
Balance stated on annual report of June 30, 1909,	\$18,867,461 86	
Deduct adjustment,	13,731,143 16	
	\$5,136,318 70	
Add balance from income account,	2,597,373 82	
		7,733,692 52
Total,		\$172,568,090 10

PROFIT AND LOSS ACCOUNT.

	Dr.	Cr.
Balance from previous year,		\$18,867,461 86
Gross earnings from operation,		31,788,246 38
Miscellaneous income,		965,864 75
Real estate revenue and income from securities,		1,135,091 80
Operating expenses, including charges on ac- counts of reconstruction and deferred main- tenance,	\$25,658,051 47	
Rebates and discounts,	897,976 76	
Interest on funded debt,	1,687,829 73	
Interest on floating debt,	58,274 65	
Adjustment,	13,731,143 16	
Dividends declared on stock,	2,989,696 50	
Balance, surplus,	7,733,692 52	
	\$52,756,664 79	\$52,756,664 79

STATISTICAL INFORMATION.

Miles of poles and cable,	214,360
Miles of wire,	1,429,049
Offices,	24,825
Messages,	75,135,405
Receipts,	\$33,889,202.93
Expenses,	\$26,614,302.88
Net revenue,	\$7,274,900.05
Average tolls per message,	\$0.352
Average cost to company of message,	\$0.302

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